A Refutation of and Palm's and MacAndrew's[1]:

"Geocentrism and Stellar Aberration: Illuminating the Earth's Motion"

August 2018

Palm and MacAndrew: The observation of aberration of starlight is a powerful piece of evidence in favor of the motion of the Earth. It represents objective evidence that the geocentrists are wrong. Aberration admits of a perfectly reasonable and straightforward explanation – it is caused by the motion of the Earth around the Sun according to the universally observed laws of gravity. On the other hand, the neo-geocentric "explanation" for how aberration occurs with a motionless Earth fails utterly, revealing both their fundamental misunderstanding of the phenomenon and their inability yet again to explain even the most basic observable phenomena from within their own system. This article will explain why stellar aberration is such good evidence for the Earth's orbital motion and why the neo-geocentric explanation fails.

R. Sungenis: When my opponent fills his rebuttals with phrases like "fails utterly," "fundamental misunderstanding," "inability to explain even the most basic" and other such derogatory verbiage, it has been my experience that such huffing and puffing ends up where my opponent is revealed as the one who fits the category. This paper by Palm and MacAndrew is no exception. Come watch and see.

Palm and MacAndrew: What is Stellar Aberration? James Bradley was the first to observe aberration of starlight in 1727 while searching for stellar parallax. Parallax is "a displacement or difference in the apparent position of an object viewed along two different lines of sight". Once the Earth was understood to orbit the Sun, astronomers predicted that they should be able to observe parallax when viewing a star first from one side of the Earth's orbit around the Sun and then again six months later when it is at the opposite side of its annual orbit (here's a good video describing and illustrating this: link). Bradley's instruments were not sensitive enough to detect the stellar parallax of even the nearest stars, but were sensitive enough to measure stellar aberration which is a bigger effect than parallax. Sure enough, once their instruments became sufficiently sensitive, astronomers were indeed able to observe stellar parallax, starting with Friederich Bessel's successful measurement of the parallax of 61 Cygni in 1838, over 100 years after the first observation of stellar aberration. Since then both ground-based and space-based instruments have yielded ever more accurate parallax readings for more than one hundred thousand stars , out to a distance of around 3,000 light years. In future, ESA's Gaia mission will measure the distance via parallax of up to a billion stars

out to a distance of about 300,000 light years. Stellar parallax itself provides powerful evidence for the motion of the Earth. Classical geocentrism would never predict its existence – simply put, it should not exist in an Earth-centered (geocentric) model in which the universe revolves around a motionless Earth at its center. As we will see, the neo-geocentrists' "explanation" of stellar parallax ironically forces them to center the entire universe not on the Earth but on the Sun and then have the whole universe revolve around the Sun, while the Sun itself revolves around the Earth.

R. Sungenis: When my opponent doesn't even understand the geocentric system he refutes, it shows he has a "fundamental misunderstanding" and an "inability to explain even the most basic" components of his opponent's system. His description that we "have the whole universe revolve around the Sun" is false. In the Neo-Tychonic geocentric system, the universe does not revolve around the sun; rather the universe is geometrically centered on the sun, and then the sun/stars revolve around the Earth. Apparently, my opponent hasn't yet understood the videos we have provided, such as this one: https://www.youtube.com/watch?v=stIDO8QBhww

Palm and MacAndrew: Needless to say there is no known physics to explain this *ad hoc* and *post hoc* example of special pleading.

R. Sungenis: It wouldn't be so bad except for the fact that the geocentrists have told them numerous times by the "known physics to explain" how the universe can rotate around the Earth as its center of mass, but they don't seem to want to accept it. Everyone from Thirring,[2] Lense,[3] Rosser,[4] Ellis,[5] Barbour/Bertotti,[6] Einstein,[7] Hoyle,

---

[2] Hans Thirring, "Über die Wirkung rotierender ferner Massen in der Einsteinschen Gravitationstheorie," *Physikalische Zeitschrift* 19, 33, 1918, translated: "On the Effect of Rotating Distant Masses in Einstein's Theory of Gravitation." Three years later, Thirring made a correction and wrote the essay: "Berichtigung zu meiner Arbeit: 'Über die Wirkung rotierender ferner Massen in der Einsteinschen Gravitationstheorie,'" *Physikalische Zeitschrift* 22, 29 (1921), translated: "Correction to my paper 'On the Effect of Rotating Distant Masses in Einstein's Theory of Gravitation.'" Thirring wrote: "Hence, over and against my original formula, the Coriolis force remains unchanged. However, a factor of 4/5 has to be included in the term containing the centrifugal force….The fundamental result of my paper (the appearance of centrifugal and Coriolis forces in the gravitational field of rotating distant masses) remains completely unchanged. H. Thirring, Vienna, October 15, 1920."

[3] Joseph Lense and Hans Thirring, "Über den Einfluss der Eigenrotation der Zentralkörper auf die Bewegung der Planeten und Monde nach der Einsteinschen Gravitationstheorie," *Physikalische Zeitschrift* 19, 156-163 (1918), translated: "On the Influence of the Proper Rotation of Central Bodies on the Motions of Planets and Moons According to Einstein's Theory of Gravitation." They write: "…the rotation of distant masses produces a gravitational field equivalent to a centrifugal field. From another perspective it seems interesting now, by the same means, to perform the not too difficult task of integrating the field equations for a rotating solid sphere. In the Newtonian theory one can exactly replace the field in the space surrounding a (stationary or rotating) sphere of incomprehensible fluid as equivalent to that of a point mass; but for a rotating sphere this is not the case. In the latter case…there appear supplementary terms corresponding to centrifugal and Coriolis forces" (p. 156).

[4] *An Introduction to the Theory of Relativity*, William G. V. Rosser, 1964, p. 460, italics and comments in brackets added. Rosser adds: "Relative to an inertial frame the 'fixed' stars are at rest or moving with uniform velocity. However, relative to a reference frame accelerating relative to an inertial frame the stars are accelerating. It is quite feasible that accelerating masses give different gravitational forces from the gravitational forces due to the same masses when they are moving with uniform velocity. Thus the conditions in an accelerating reference frame are different from the conditions in inertial frames, since the stars are accelerating relative to the accelerating reference frame. It seems plausible to try to interpret inertial forces as gravitational forces due to the accelerations of the stars relative to the reference frame chosen." Einstein was criticized on this very point by Ph. Lenard in a 1917 open debate, later published in 1920. Lenard stated: "superluminal velocities seem really to create a difficulty for the principle of relativity; given that they arise in relation to an arbitrary body, as soon as they are attributed not to the body, to the whole world, something which the principle of relativity in its simplest and heretofore existing form allows as equivalent" ("Allgemeine Diskussion über Relativitätstheorie," *Physikalische Zeitschrift*, 1920, pp. 666-668, cited in Kostro's *Einstein and the Ether*, p. 87). As an aside, Rosser also points out the following: "It has often been suggested that a direct experimental check of the principle of the constancy of the velocity of light is impossible, since one would have to assume it to be true to synchronize the spatially separated clocks" (*ibid.*, p. 133).

[5] Ellis states: "It is shown that spherically symmetric static general relativistic cosmological space-times can reproduce the same cosmological observations as the currently favored Friedmann-Robertson-Walker universes, if the usual assumptions are made about the local physical laws determining the behavior of matter, provided that the universe is inhomogeneous and our galaxy is situated close to one of its centers" ((George F. R. Ellis, "Is the Universe Expanding?" *General Relativity and Gravitatio*n, vol. 9, no. 2, February, 1978, p. 87). Ellis adds that only three things can lead us to conclude that the universe we live in is not such a static space-time spherically symmetric universe: "(i) unverifiable a priori assumptions, (ii) detailed physical and astrophysical arguments, or (iii) observation of the time variation of cosmological quantities" and concludes: "…the standard models of a principle of uniformity (the cosmological or Copernican principle). This is assumed for *a priori* reasons and not tested by observations. However, it is precisely this principle that we wish to call into question. The static inhomogeneous model discussed in this paper shows that the usual unambiguous deduction that the universe is expanding is a consequence of an unverified assumption, namely, the uniformity assumption. *This assumption is made because it is believed to be unreasonable that we should be near the center of the Universe.* [Ellis adds footnote here citing Steven Weinberg's *Gravitation and Cosmology*, 1972].

[6] "Let us first consider the case when the massive body is a rigid, uniform shell of mass M_o and radius R_o [*e.g.*, the universe]. The test body [*e.g.*, the Earth] is near the center of the shell (coincident with the center of the cosmological shell and the origin of co-ordinates); thus $r_i \ll R_o$. [T]he first term of our theory: the gravitational action of a finite, spherical body at rest is not the same as if its mass were concentrated at the center, as happens both in Newtonian physics and in general relativity…. The last term amounts to a small…increase of the gravitational constant…the internal motion mechanism, which of necessity leads to attractive gravity, explains gravity in a way radically different from all other theories" ("Gravity and Inertia in a Machian Framework" J.B. Barbour and B. Bertotti. Il Nuovo Cimento, 32B(1):1-27, 11 March 1977).

[7] "We need not necessarily trace the existence of these centrifugal forces back to an absolute movement of K' [Earth]; we can instead just as well trace them back to the rotational movement of the distant ponderable masses [stars] in relation to K' whereby we treat K' as 'at rest.'…On the other hand, the following important argument speaks for the relativistic perspective. The centrifugal force that works on a body under given conditions is determined by precisely the same natural constants as the action of a gravitational field on the same body (*i.e.*, its mass), in such a way that we have no means to differentiate a 'centrifugal field' from a gravitational field….This quite substantiates the view that we may regard the rotating system K' as at rest and the centrifugal field as a gravitational field….The kinematic equivalence of two coordinate systems, namely, is not restricted to the case in which the two systems, K [the universe]

and the general principle of relativity),[8] and many more, admit that modern physics allows the the universe to rotate daily around a fixed Earth. Of course, not many of these same physicists don't like that kind of system, but at least they are honest enough to admit that the "known physics" allows it. But apparently my opponents are not as honest as these scientists.

So, the only ones doing "special pleading" here are Palm and MacAndrew, since they plead with you to discount a geocentric universe while they refuse to admit what the major scientists of the world have already conceded in spades. As such, we'll have to take everything they say with a grain of salt. Anyone who claims to follow modern physics but refuses to accept its conclusion about the possibility of a rotating universe is obviously not living in reality. We understand their predicament, of course. Once the viability of geocentrism is established from "known physics" then the game is really over for these chaps and to go on any further would be to beat a dead horse.

---

and K' [the Earth] are in uniform relative translational motion. The equivalence exists just as well from the kinematic standpoint when for example the two systems rotate relative to one another" (Einstein's October 1914 paper titled: "Die formale Grundlage der allgemeinen Relativitätstheorie," trans. by Carl Hoefer, in *Mach's Principle: From Newton's Bucket to Quantum Gravity*, eds. Julian Barbour and Herbert Pfister, pp. 69, 71).

[8] As noted by physicist Max born: "Thus we may return to Ptolemy's point of view of a 'motionless Earth.' This would mean that we use a system of reference rigidly fixed to the Earth in which all stars are performing a rotational motion with the same angular velocity around the Earth's axis…one has to show that the transformed metric can be regarded as produced according to Einstein's field equations, by distant rotating masses. This has been done by Thirring. He calculated a field due to a rotating, hollow, thick-walled sphere and proved that inside the cavity it behaved as though there were centrifugal and other inertial forces usually attributed to absolute space. Thus from Einstein's point of view, Ptolemy and Copernicus are equally right. What point of view is chosen is a matter of expediency" (Max Born, *Einstein's Theory of Relativity*, 1962, 1965, pp. 344-345. Thirring's model has been duplicated by Barbour & Bertotti (*Il Nuovo Cimento B*, 38:1, 1977) and Joseph Rosen ("Extended Mach's Principle," *American Journal of Physics*, Vol 49, No. 3, March 1981) using Hamiltonians; and by William G. V. Rosser (*An Introduction to the Theory of Relativity*, 1964) who expanded on Thirring's paper and noted that the universe's rotation can exceed c by many magnitudes; Christian Møller (*The Theory of Relativity*, 1952) who also extended Thirring's paper using a ring universe rather than a shell; G. Burniston Brown ("A Theory of Action at a Distance," *Proceedings of the Physical Society*, 1955) who discovered geocentrism based on Newtonian physics; Parry Moon and Domina Spencer ("Mach's Principle," *Philosophy of Science*, 1959) who arrive at geocentrism using Mach's principle; J. David Nightingale ("Specific physical consequences of Mach's principle," 1976) who transposed the Einstein equation of Mach's principle into Newtonian physics for a geocentric universe; and several others do the same. As Hoyle notes: "we can take either the Earth or the Sun, or any other point for that matter, as the center of the solar system. This is certainly so for the purely kinematical problem of describing the planetary motions. It is also possible to take any point as the center even in dynamics, although recognition of this freedom of choice had to await the present century" (Fred Hoyle, *Nicolaus Copernicus: An Essay on his Life and Work*, p. 82. Also from the same book: "Today we cannot say that the Copernican theory is "right" and the Ptolemaic theory is "wrong" in any meaningful sense. The two theories are…physically equivalent to one another," *ibid*, p. 88).

Palm and MacAndrew: Bradley at first thought he was observing stellar parallax but it soon became clear that he was observing something else – it turned out to be stellar aberration. So let's describe that related phenomenon, the aberration of starlight. Over a period of a year the apparent direction of all stars and galaxies appears to change by a small amount in a way that also depends on their location with respect to the ecliptic (the plane of Earth's orbit around the Sun). The general form of the apparent figure traced out by the stars over a year is an ellipse. The major axis of the ellipse is about 41 arcseconds aligned with the ecliptic, and the minor axis varies from zero for stars on the ecliptic plane (so they trace out a straight line forwards and backwards) to the same 41 arcseconds for stars on the ecliptic pole (so they trace out a circle.)[1] (See this video [link] for a good presentation on aberration.)

R. Sungenis: The video my opponent recommends does a poor job of explaining aberration. (But the next video in that series about the Michelson-Gale experiment is a must for you to watch, since that is the experiment that my opponent avoids as much as possible—an issue that is very relevant for our recent debate on the Michelson experiments that I will also post). Allow me to give you a simply illustration of stellar aberration. This is from the geocentric perspective:
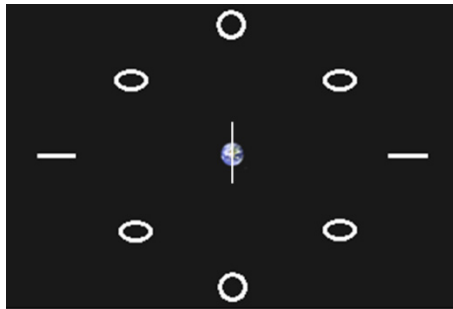
The white line through the Earth is its polar axis, on the north celestial pole. In the heliocentric system it would be tilted 23.5 degrees to the right, and all one need do then is rotate the picture 23.5 degrees:
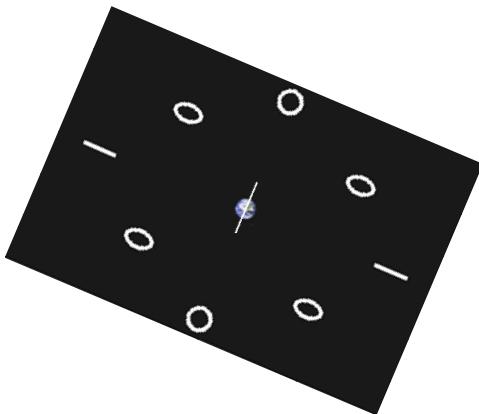
The white circle at the top and bottom represents the circular motion a star will form over a year's period on the north/south celestial pole. The ellipse is what will occur for a star at 45 deg to the white pole, and the dash line is what will occur for a star that is on the universal equatorial line.

Palm and MacAndrew: The classical explanation for aberration is that the observed direction of incidence of light from the stars is given by the sum of two vectors – the velocity of light and the velocity of the Earth. In fact, in Bradley's time, the speed of Earth's orbit was known from Kepler's and Newton's laws, so the observed ±20.5 arcsecond amplitude of aberration was used to calculate the speed of light, a calculation which yielded a result very close to the currently accepted speed of light. This is direct physical evidence that the Earth is indeed in a gravitational orbit around the Sun.

R. Sungenis: And these two talk about our "special pleading"? Palm and MacAndrew think that just because they can slap together two vectors, viola! they have proof for heliocentrism. Such a scenario would only be possible if: (a) one assumes the Earth is moving without proving it moves, and (2) one assumes that light speed is always constant relative to the observer and can never be faster than c (300K km/sec) before he proves it to be so, whether near Earth or deep in outer space. Unless Palm and MacAndrew can prove both assumptions, then their model of aberration remains on the chopping block.

Their assumption is based on what occurred after the 1887 Michelson-Morley experiment. Because this experiment showed no proper fringe shifts between two light beams, the most reasonable conclusion was that the Earth was not moving through space and that light speed was not constant.[9] But since nobody in the modern science establishment could accept that conclusion (since to accept it they would all need to do novenas to Paul V and Urban VIII, the popes who condemned Galileo), they all worked

---

[9] "The problem which now faced science was considerable. For there seemed to be only three alternatives. The first was that the Earth was standing still, which meant scuttling the whole Copernican theory and was unthinkable" (*Einstein: The Life and Times*, 1984, pp. 109-110); "The data [of the interferometers] were almost unbelievable…. There was only one other possible conclusion to draw – that the Earth was at rest. This, of course, was preposterous" (Bernard Jaffe, *Michelson and the Speed of Light*, p. 76); "Always the speed of light was precisely the same….Thus, failure [of Michelson-Morley] to observe different speeds of light at different times of the year suggested that the Earth must be 'at rest'…It was therefore the 'preferred' frame for measuring absolute motion in space. Yet we have known since Galileo that the Earth is not the center of the universe. Why should it be at rest in space?" (Adolf Baker, *Modern Physics & Antiphysics*, pp. 53-54); "In the effort to explain the Michelson-Morley experiment…the thought was advanced that the Earth might be stationary….Such an idea was not considered seriously, since it would mean in effect that our Earth occupied the omnipotent position in the universe, with all the other heavenly bodies paying homage by revolving around it" (Arthur S. Otis, *Light Velocity and Relativity*, p. 58); "This conclusion directly contradicts the explanation of the phenomenon of aberration which has been hitherto generally accepted, and which presupposes that the Earth moves" (Albert A. Michelson, "The Relative Motion of the Earth and the Luminiferous Ether," *American Journal of Science*, Vol. 22, August 1881, p. 125).

very hard to find some "scientific" explanation to make the horrible results of Michelson's experiment go away. So, following Lorentz and Einstein (1892 to 1905), both anti-Christian, they decided to claim that Michelson's equipment shrank (either by Lorentz's "ether" or Einstein's "relative motion"), and the shrunken apparatus threw off the measuring ability of Michelson's machine and thus made it appear as if the Earth was standing still in space and that light speed was not constant. In other words, if they could convince people the machine shrank, they could then say the Earth is moving around the sun and light speed is constant.

There was one big problem, of course: no one had evidence the machine shrank. All they knew was that IF they said the machine shrank they could have the excuse that the Earth moved and light speed wasn't constant. This is the world that Palm and MacAndrew live in—a fantasy world much worse than Alice in Wonderland.[10] It was eventually called the Special Relativity theory.

Palm and MacAndrew: The modern explanation for stellar aberration, based on special relativity, uses the Lorentz transform to transform between the different inertial frames occupied instantaneously by the Earth as it orbits the Sun, and for an orbital speed much less than the speed of light, gives an aberration angle almost identical to the classical explanation.[2]

R. Sungenis: So, you see how Palm and MacAndrew are going to depend on the fantasy world of Special Relativity for their answers. As such, I find it quite ironic that Palm accepts the "Lorentz transform" as an explanation when, in a debate I had with him just a week ago, here is what he said of it: "Lorentz did advance contraction as a possible explanation of MMX, but even at the time this was seen (by him too, I think) as an *ad hoc*, unsupported explanation." Apparently, it's *ad hoc* until Palm needs it to defend Special Relativity and Special Relativity's explanation of stellar aberration.

Second, an Earth orbiting the sun is not an "inertial frame" since in the heliocentric system the Earth is accelerating around the sun, not in uniform motion, and Special Relativity and the "Lorentz transform" are supposed to be invalid in accelerated frames. Go figure. They also forgot to mention the Fresnel drag as a third option for explaining aberration for the heliocentric system, but it works no better.

Third, what Palm and MacAndrew fail to mention is that there was an important experiment performed in 1871 by George Airy. Confronted by several explanations for stellar aberration, Airy wanted to find out which one was the actual reality. If the Earth was rotating and revolving, he figured that his telescope would have to be tilted more toward the star to capture its light due to the presumed limited speed of the star light coming into his telescope. To act as his control, Airy used two telescopes: one filled with

---

[10] See my recent debate with David Palm on Michelson's experiment and the history of interferometry.

air and one filled with water. He did so because light travels slower in water. Since light speed is slower in the water telescope, the light from the star had to come straight into the telescope or it would hit the side wall of the water telescope and not go to the eyepiece. As such, Airy figured he would have to tilt his water telescope much more than the air telescope to get the light to go straight in and not hit the sides.

What he discovered was that he did not have to tilt the water telescope any more than the air telescope. This meant that the light was coming straight into the telescope. But if that was the case, then it would also be required for the Earth to be motionless, otherwise the light beam would not come into the telescope straight, but crooked.

Special Relativity would have a hard time explaining the non-difference between the air and water telescope, even if it used the Lorentz contraction, since the Lorentz contraction on both telescopes would be the same and thus make the contraction of no consequence.

So, in the question of whether stellar aberration was caused by a heliocentric-moving Earth or a geocentric non-moving Earth, Airy appeared to answer that question. It was the geocentric non-moving Earth. Incidentally, Airy's experiment was dubbed, "Airy's Failure," because it failed to demonstrate the heliocentric system that everyone was hoping for.

Palm and MacAndrew: How Do Parallax and Aberration Differ? Both stellar parallax and annual stellar aberration are similar annual phenomena, so how does stellar aberration compare with and differ from parallax? It is different in three important respects: 1) The amplitude of stellar aberration is the same for all stars and galaxies, while the amplitude of parallax depends on the distance of the star. 2) The amplitude of aberration is much bigger than parallax – the parallax of the closest star, Proxima Centauri, is about 26 times less than stellar aberration, and the parallax of stars gets proportionately less the further away they are. 3) Parallax and aberration are 90 degrees out of phase, since parallax is proportional to the *position* of the Earth while aberration is proportional to its *velocity*. So, for example, if we observe a star lying on the ecliptic at zero degrees ecliptic longitude, for which the maximum parallax displacement occurs at the summer and winter solstices, then for that same star the maximum stellar aberration occurs at the vernal and autumnal equinoxes.

R. Sungenis: To make it simpler, here are four diagrams that illustrate the difference between stellar parallax and stellar aberration in regards to the 90 degree phase difference:
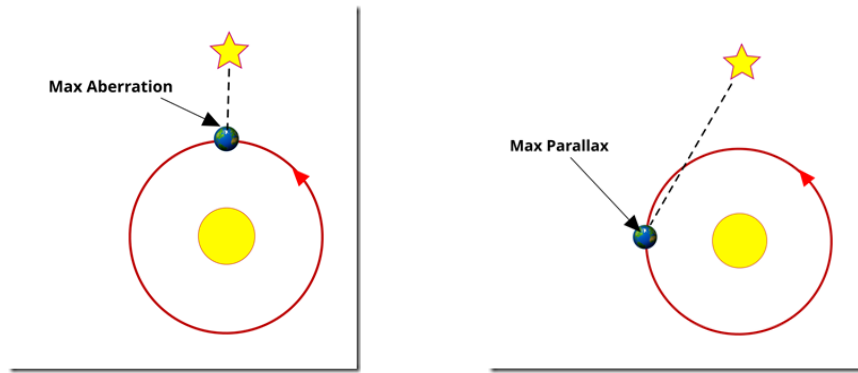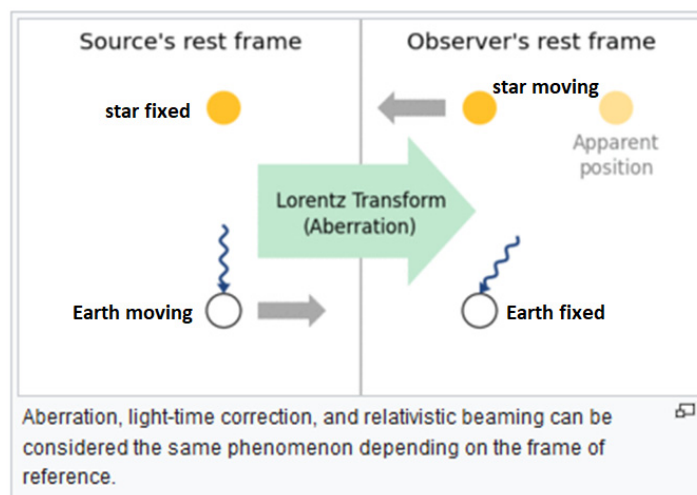
Heliocentric system
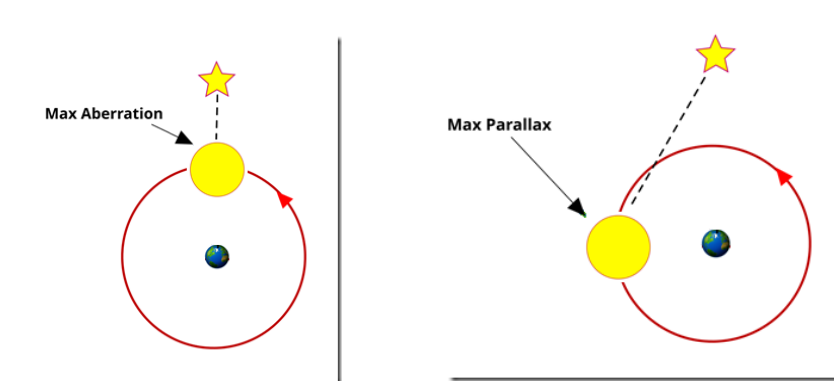
Geocentric system

Palm and MacAndrew: Here is the key point: *If the Earth were stationary or moving at a constant velocity (that is, in an inertial frame), we'd never be able to observe stellar aberration.*

R. Sungenis: First, let's make this clear: we don't know that we are seeing an "aberration" of light. All we know is that we see each star making either a circle, an ellipse or a line over the course of a year. Palm and MacAndrew assume these formations are caused by an "aberration" of light because they assume: (a) that Earth moves, and (b) that light moves slow enough from the star that it can't precisely catch up with the accelerating Earth, neither of which they have proven and both of which depend on the *ad hoc* interpretation they give to Michelson's 1887 experiment. Hence their statement above about "inertial frames" and such is just a red herring.

Palm and MacAndrew: *We only observe it because the Earth's velocity vector is continually changing as it orbits the Sun, and this causes the angle of observed aberration (the observed direction of the star) to change over the course of the year.*

R. Sungenis: We already know—given the system within which Palm and MacAndrew are working—that an orbiting Earth against a fixed star might cause aberration. What Palm and MacAndrew need to prove is, when the situation is reversed and the "changing velocity vector" is of a star in revolution around the Earth, that this will not cause aberration. Good luck. Even Wikipedia sees the difference,[11] which shows: (1) a fixed star and a moving Earth, and (2) a star moving and a fixed Earth. (I have added labels to the Wiki animation for detail. And never mind the "Lorentz Transform" label. You already know why that was added, and we will add more later).

Aberration, light-time correction, and relativistic beaming can be considered the same phenomenon depending on the frame of reference.

Palm and MacAndrew: It's difficult to understand how anyone who understands the history and the science can claim that stellar aberration is evidence for a stationary Earth. Let's see why that is.

R. Sungenis: First, for those who don't sweep it under the proverbial rug, we all know from where the "Earth moving" and the "constancy of light speed" stipulations originated—from the fantasy world of Lorentz's magical "shrinking" of matter and Einstein's endorsement of it. Second, the "history and science" shows us that heliocentrism has had extreme difficulty in explaining stellar aberration. The leading methods after Bradley's original, Special Relativity, the Lorentz contraction, and the Fresnel drag, each fall short, in addition to the fact that each is a Rube Goldberg in itself, as we shall see.[12] Let's take a look at a few explanations they have proposed. Here is the conclusion of the article:[13]

---

[11] https://en.wikipedia.org/wiki/Aberration_of_light
[12] https://en.wikipedia.org/wiki/Aberration_of_light
[13] https://arxiv.org/html/physics/0101066

(3) CONCLUSION (3)

> It is stated in [1] that aberration is a correction to be applied <u>between observers in relative motion.</u> This statement is self-evident in Euclidean space-time concept as discussed below.

> In Fig. 1, if the velocity μ of frame S is allowed to take an arbitrary value between (-c) and (+c), the distance (OO' = μ) is to be corrected for each observer at O in relative motion in order to find the apparent stellar position at angle θ in Euclidean space-time. This obviously leads to the result [1] <u>that aberration is a correction to be applied between observers in relative motion.</u>

Notice that this author says that aberration is a result of the RELATIVE motion between observers.

Here's another viewpoint that disregards Special Relativity and uses the Fresnel drag theory:

> A new derivation of the relativistic aberration formula for a plane-polarized lightwave is presented that does <u>not require any use of the Lorentz transformation</u>. The method is based on a <u>modification of the Huygens/Fresnel</u> principle to include the relativistic effects introduced by <u>the relative motion between the observer and the emitter</u>. The derivation clearly shows that the aberration formula is a direct consequence of the relative simultaneity.[14]

Here's another source to muddy the waters and disagree with everything quoted above:

> We present a physical-optics-based theory for aberration of starlight and show that the influence of the moving sensor on the incident stellar wavefront combined with a finite velocity of light within the sensor can fully account for the aberration phenomena. <u>Our treatment differs from all previous derivations</u> because we include wavefront-imaging physics within the sensor model. Our predictions match existing Earth-based aberration measurements <u>but differ from predictions of the special relativistic-based theory for larger velocities.</u> We derive design parameters for an experiment using an Earth-based sensor containing a refractive optical medium that would experimentally differentiate between these two theories and yield an independent experimental test of time dilation.[15]

Conversely, the geocentric system is quite simple. We only need the movement of the universe to explain it. The rotating universe, due to its angular momentum and the inertial forces that it creates in the process, will cause all the stars to move together—the very reason we see "aberration" in each star of the sky. You can do an experiment to show this.

---

[14] "Relativistic aberration of light as a corollary of the relativity of simultaneity," Aleksandar Gjurchinovski, Published 2 May 2006, *European Journal of Physics*, Volume 27, Number 4

[15] Journal of the Optical Society of America A Vol. 29, Issue 7, pp. 1217-1223 (2012) https://doi.org/10.1364/JOSAA.29.001217

Get a beach ball to represent the universe. Put one hand on the left side of the ball and your other hand on the right side of the ball, then, do not rotate the ball, but move the whole ball in a circular motion. Imagine that there is a pencil at the 0 degree point (the very top of the ball); another pencil at a 45 degree angle; and another pencil at 90 degrees. Put a piece of paper at the top of each pencil. As you move the ball, and keep the pencil on the three pieces of paper, the result will be that you drew a circle at the top; and ellipse at the 45 deg angle, and a straight line at the 90 deg angle.
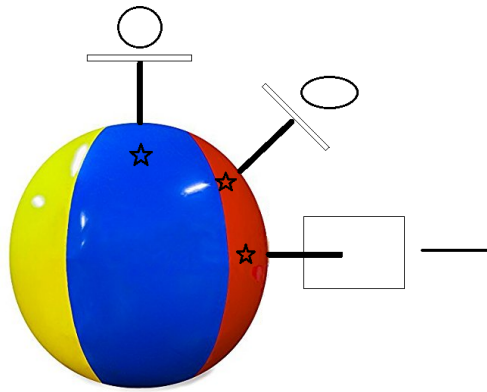
Palm and MacAndrew: Reason #1: Annual stellar aberration exactly matches the diameter and period of the Earth's revolution round the Sun, calculated from different and independent considerations such as orbital mechanics and the circumference and period of Earth's orbit.

R. Sungenis: So what? Why would the geocentric system be any different since in the geocentric system the sun is 93 million miles away and moving at 19 miles per second around the Earth—the exact same distance and speed in the heliocentric system for the Earth?

Palm and MacAndrew: Reason #2: Stellar aberration is the same amplitude for all stars and galaxies independent of their distance.

R. Sungenis: Any why would it be any different in the geocentric system, since the universe's annual spiraling motion is carrying all the stars with it?

Palm and MacAndrew: Reason #3: Stellar aberration is caused by the component of the velocity of the observer perpendicular to the direction of the light rays from the star, and is completely independent of the velocity of the star itself

R. Sungenis: In case you didn't notice, the only thing this means is that in the heliocentric system the Earth is moving and the star is fixed. We already know this.

Palm and MacAndrew: (that's why it's 90 degrees out of phase with parallax – parallax is caused by the earth's displacement, and aberration is caused by the Earth's velocity).

R. Sungenis: Yes, in the heliocentric system, such would have to be true. So what? No one is disputing what heliocentrism purports to be the cause. The question is: is it the actual reality? In order to make it the actual reality, they would need to irrefutably discredit the geocentric alternative. Can they?

Palm and MacAndrew: So stellar aberration *must* be caused by the velocity of the Earth changing with time and cannot be caused by motion of the stars a) because its magnitude is independent of the star's distance

R. Sungenis: Well, obviously he hasn't discredited the geocentric alternative, because in the geocentric system the "magnitude" of the aberration (which refers to the semi-major axis of the circle, ellipse or the length of the line at the equator), is also "independent of the star's distance." How could it not be? Since the universe is carrying all the stars as it makes its annual horizontal circular motion around the Earth, then all the stars are going to move in exactly the same proportion. The only difference we will see is that stars near the north celestial pole will form a circle; stars between the north pole and the equator will form an ellipse; and stars lying on the equatorial plane will be a straight line (but with a length the same size as the diameter of the circle at the north pole).

Palm and MacAndrew: and b) because stellar aberration is independent of motion of the source.

R. Sungenis: Perhaps it is in the heliocentric system, but not in the geocentric, since the "source" is the star, and if the star is moving with the universe in the universe's annual circle around the Earth (see diagram above), then the star is going to form an annual circle, an ellipse or a straight line depending on declination and ascension of the star with respect to Earth.

Palm and MacAndrew: Reason #4: We test b) in Reason #3 empirically by observing rapidly orbiting binary stars . *If* aberration is caused by the velocity of the *source*, then the very high velocity of orbiting binary stars would cause an aberration in their observed position, and because the direction of their velocity is rapidly changing as they orbit, we would observe a change in the direction of the aberration. The consequence of this is that the observed separation of orbiting binaries would appear to be larger than they are and from what we observe – they would appear to be separated much further apart. That is not what we observe, hence the simple and straightforward explanation is shown to be the correct one – aberration is caused by the motion of the observer, and in the case of Earth-based observers by the motion of the Earth. [De

Sitter's careful observations of binary stars in the early twentieth century substantiated the view that aberration does not depend on the motion of the source: "In 1913, Willem de Sitter argued . . . a star in a double-star system would usually have an orbit that caused it to have alternating approach and recession velocities, and light emitted from different parts of the orbital path would then travel towards us at different speeds. . . . That is, Kepler's laws of motion would apparently be violated for a distant observer. De Sitter made a study of double stars and found no cases where the stars' computed orbits appeared non-Keplerian" (link; see also E. Eisner, "Aberration of Light from Binary Stars-a Paradox?")

R. Sungenis: The question for the heliocentrists is: if they abide by Special Relativity, that theory dictates that the light speed from either star, whether the star is approaching Earth or receding from Earth, is always going to be c (300,000 km/sec). If that is the case, then how could de Sitter say, "light emitted from different parts of the orbital path would then travel towards us at different speeds"? In Special Relativity, the speed of the source is not added to the speed of the light beam. In that system, light always moves at c, regardless of the source speed. So Palm's and MacAndrew's quote from de Sitter proves nothing for them, except that de Sitter has further muddied the waters for the heliocentrists. Their bigger problem is explaining how the binary light is going to be received on Earth if c is constant and the Earth is rotating and revolving.

As for their citing of Eisner, maybe they didn't notice but Eisner discounts Special Relativity as an answer to binary stars; and then shows how its non-explanation for binaries reflects poorly on its solution for stellar aberration. But earlier Palm said how good Special Relativity is in explaining aberration:

> The modern explanation for stellar aberration, based on special relativity, uses the Lorentz transform to transform between the different inertial frames occupied instantaneously by the Earth as it orbits the Sun, and for an orbital speed much less than the speed of light, gives an aberration angle almost identical to the classical explanation.

But if Special Relativity cannot answer binary stars, yet Palm and MacAndrew are trying to use binary stars as a phenomena that geocentrism cannot explain, then they have just shot themselves in the foot. Which explanation do they want, Einstein's or Eisner's? To clear this up, let's see what Eisner actually says: [16]

Let us assume that we may consider the
stars to be instantaneously in uniform motion

---

[16] Eisner, *op. cit.*, p. 817.

with respect to the observer, and that gravitational fields are small, so that use of the special theory of relativity is legitimate. Then if the aberration depends only on the relative velocities of source and observer, the apparent directions of the stars as seen from 0 must be displaced from their true directions by vectors $-\mathbf{v}_1/c, -\mathbf{v}_2/c$ (to first order in v/c) (see Fig. 1). It can readily be seen that the stars must appear to describe circular orbits of angular radii ρ_1, ρ_2 where

$$\rho_1 = \left[\left(\frac{v_1}{c} \right)^2 + \left(\frac{R_1}{D} \right)^2 \right]^{\frac{1}{2}}$$

$$= \frac{R_1}{c'T} \left[1 + \left(\frac{c'T}{D} \right)^2 \right]^{\frac{1}{2}}$$

$$= \frac{Km_2}{T^{1/3}} \left[1 + \left(\frac{c'T}{D} \right)^2 \right]^{\frac{1}{2}}$$

$$\rho_2 = \left[\left(\frac{v_2}{c} \right)^2 + \left(\frac{R_2}{D} \right)^2 \right]^{\frac{1}{2}}$$

$$= \frac{R_2}{c'T} \left[1 + \left(\frac{c'T}{D} \right)^2 \right]^{\frac{1}{2}}$$

$$= \frac{Km_1}{T^{1/3}} \left[1 + \left(\frac{c'T}{D} \right)^2 \right]^{\frac{1}{2}}$$

($v_1 = |\mathbf{v}_1|$, $v_2 = |\mathbf{v}_2|$; T is the period of revolution; $c' = c/2\pi$; m_1, m_2 are the masses of the stars; $K = [2\pi G/(m_1 + m_2)^2]^{1/3}/c$, where G is the gravitational constant.)

This result is paradoxical. For, if the system were observed by very distant observers, the orbits would have *angular* radii v_1/c, v_2/c, independent of distance.

In other words, if Eisner uses Special Relativity for binary stars, it results in a contradiction, since $\rho_1 = Km_2/T^{1/3}[1+(c'T/D)^2]^{1/2}$ obviously doesn't match v_1/c, and $\rho_2 = Km_1/T^{1/3}[1+(c'T/D)^2]^{1/2}$ doesn't match v_2/c.

> The paradox follows direct from the assumption that the aberration depends only on the relative motion of source and observer. That this is so is stated explicitly or implicitly in most treatments of aberration,[1-4] and indeed is sometimes emphasized[2] as distinguishing aberration in special relativity from aberration in "æther" theories. In a stationary æther, the paradox would not arise.

In other words, Special Relativity creates a contradiction not only in binary stars, but in the concept of aberration in general, but a stationary ether model would not create a contradiction. We will come back to the "stationary ether model" later in this paper. For now, let's move on with Eisner:

> The fact that we believe that the source is no longer where it was when it emitted the light we observe says nothing about transformation between frames of reference, nor about the properties of light, except that it has a finite speed. It says instead that we have a dynamical model of the motion of the source with respect to the observer. This has nothing to do with "aberration."
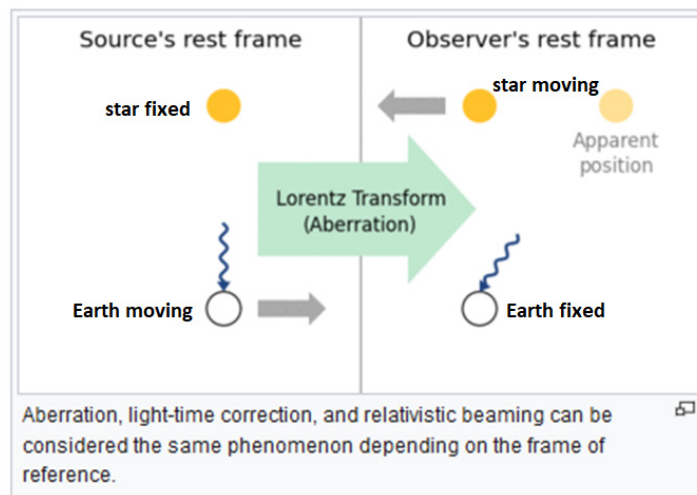>
> In our example with binary stars, the observer simply sees the stars where they were when the light left—as one would expect intuitively. The concept implied by the term *secular aberration* leads to the paradox.

So, we can see that the finite speed of light assumed by Eisner is going to be part and parcel in his explanation, (which, by the eay, seems to be the opposite of what Palm and MacAndrew claimed from quoting de Sitter who said that the speed of the source is added to the speed of light).

> Aberration is unsymmetrical with respect to the velocities of observer and source, because the experiment that measures it requires an unsymmetrical situation. While we cannot determine whether the source or the observer is in motion, there is no doubt which has *changed* its state of uniform motion.

So Eisner admits that aberration is inherently difficult to understand because of the way it has been measured. But notice he says "...we cannot determine whether the source or the observer is in motion..." In other words, we cannot tell if the star is in motion or the observer is in motion. To understand this better, refer back to the animation at https://en.wikipedia.org/wiki/Aberration_of_light that shows: (1) a fixed star with a moving Earth, and (2) a star moving against a fixed Earth. (I have added labels to the Wiki animation for detail. And never mind the "Lorentz Transform" interpretation from Wiki for now).

Aberration, light-time correction, and relativistic beaming can be considered the same phenomenon depending on the frame of reference.

Now to be fair to Eisner, he also says in the same paragraph "there is no doubt which has changed its state of uniform motion." I'll assume here that since Eisner is a heliocentrist, then "which" refers to the Earth. But he's not going to get away with this so easy.

First, the Earth doesn't "change" its state of uniform motion in the heliocentric system, since, technically, it never had uniform motion. As their Earth rotates and revolves, it is necessarily in acceleration in both modes and thus there is no "uniform motion." But perhaps Eisner thinks the Earth's acceleration is negligible and thus refers to it as

"uniform motion" and that its change of direction (from an inertial straight line to a circle) is the "change" Eisner is referring to.

Second, when Eisner says, "there is no doubt which has changed its state of uniform motion," apparently Eisner is going to base his attempted solution to aberration on the unproven idea that the Earth is moving around the sun. Sorry, but that is the same mistake Einstein made. One cannot do that in science. He must first prove the Earth is moving around the sun before he uses it as the foundation for his interpretation of aberration.

So after assuming the Earth is moving, what is Eisner's answer to aberration?

> It is widely believed that aberration, like the Doppler effect, depends on the relative velocity of source and observer. It is here shown that, if this were true, binary stars would mostly look widely separated and rapidly rotating. Not only is this not observed, but it would appear to conflict with Kepler's third law if it were.

In other words, since Special Relativity, which incorporates "the relative velocities of source and observer," does not work for binaries, then logic demands that it shouldn't work for stellar aberration in general. At the least, although Special Relativity might get to the correct answer, the dubious means by which it did so shows that its answer to stellar aberration is more or less a fluke.[17]

As it stands, in rejecting that aberration is caused by "the relative velocity of source and observer," Eisner is rejecting all the explanations that came before him, including Einstein's *Special Relativity* from 1905; Pauli's in the 1921 *Theory of Relativity*; Joos in the 1934 *Theoretical Physics*, and C. Moller in the 1955 *The Theory of Relativity*, all of which Eisner mentions in footnotes 1 to 4. See below:

> The paradox follows direct from the assumption that the aberration depends only on the relative motion of source and observer. That this is so is stated explicitly or implicitly in most treatments of aberration,[1-4] and indeed is sometimes emphasized[2] as distinguishing aberration in

---

[17] Einstein's explanation of stellar aberration was that it can be calculated as being the combination of the star moving with respect to a fixed Earth and thus creating 20.5" of aberration; and the Earth moving with respect to a fixed star and thus creating 20.5" of aberration, such that if we cut it in half we end up with 20.5" of total aberration, is just a lucky but ad hoc mechanism that is disproven by binary stars.

[1] A. Einstein, "Zur Elektrodynamik bewegter Körper," Ann. Physik **17**, 891–921 (1905) (English translation by W. Perrett and G. B. Jeffrey, Methuen, London, 1923). The angle φ' used on p. 912 is stated to be the angle between the ray direction and the line joining the source and the observer, in the observer's system: the results are correct only if φ' is the angle between the ray direction in the observer's system and the direction of the relative velocity of the two systems. Even then, as discussed in the present paper, $(\varphi - \varphi')$ is not necessarily the aberration.

[2] W. Pauli, *Theory of Relativity* (1921; English translation by G. Field, Pergamon Press, Ltd., London, 1958), Sec. 6.

[3] G. Joos, *Theoretical Physics* (English translation (first edition) by I. M. Freeman (Blackie & Sons, London, 1934), p. 233.

[4] C. Møller, *The Theory of Relativity* (Oxford University Press, London, 1955).

But as we noted earlier, it was Palm and MacAndrew who said:

> The modern explanation for stellar aberration, <u>based on special relativity</u>, uses the Lorentz transform to transform between the different inertial frames occupied instantaneously by the Earth as it orbits the Sun, and for an orbital speed much less than the speed of light, gives an aberration angle almost identical to the classical explanation.

So for Palm and MacAndrew the Special Relativity theory "gives an aberration angle almost identical to the classical explanation," yet Eisner says that "use of the special theory of relativity" for binary stars is such that the "result is paradoxical,"[18] since "binary stars [if explained by Special Relativity] would mostly look widely separated and rapidly rotating," and "would appear to conflict with Kepler's third law..."

So, knowing that Special Relativity cannot answer binaries, Palm and MacAndrew change the focus to stellar aberration. But if they want Special Relativity to explain stellar aberration, what are Palm and MacAndrew forced to do? They are forced to invoke the *ad hoc* and never proven "Lorentz transform," just as they did for the Michelson-Morley. Yes, ma'am, if they can shorten the telescope just enough so that an apparent aberration occurs, who is going to know the difference? The mileage they get out of a theory from which no one has even measured a length contraction, or even understands how the Lorentz contraction manifests itself,[19] is absolutely amazing. Yet they claim it is the geocentric system that is the Rube Goldberg standard. ROFL!

---

[18] Eisner, p. 817.

[19] **(1)** "The contraction is real." Lorentz stated in 1922 that the "contraction could be photographed" (*Lectures on Theoretical Physics*, Vol. 3, Macmillan, p. 203); C. Møller writes: "Contraction is a real

As we will see, geocentrism not only has an answer for stellar aberration, it even has an answer for binaries. Keep reading.

Eisner further says:

---

effect observable in principle by experiment…This means the concept of length has lost its absolute meaning" (Møller, *The Theory of Relativity*, 1972, p. 44); Wolfgang Pauli: "It therefore follows that the Lorentz contraction is not a property of a single rod taken by itself, but a reciprocal relation between two such rods moving relatively to each other, and this relation is in principle observable" (*The Theory of Relativity*, Dover Publications, 1958, pp. 12-13); R. C. Tolman: "Entirely real but symmetrical" (*Relativity Thermodynamics and Cosmology*, pp. 23-24).
(2) "The contraction is not real." E. F. Taylor and John Wheeler write: "Does something about a clock really change when it moves, resulting in the observed change in the tick rate? Absolutely not!" (*Spacetime Physics: Introduction to Special Relativity*, p. 76).
(3) "The contraction is only apparent." Aharoni writes: "The moving rod appears shorter. The moving clock appears to go slow" (*The Special Theory of Relativity*, p. 21); McCrea writes: "The apparent length is reduced. Time intervals appear to be lengthened; clocks appear to go slow" (*Relativity Physics*, pp. 15-16); Nunn: "A moving rod would appear to be shortened" (*Relativity and Gravitation*, pp. 43-44); Whitrow: "Instead of assuming that there are real, *i.e.*, structural changes in length and duration owing to motion, Einstein's theory involves only apparent changes" (*The Natural Philosophy of Time*, p. 255).
(4) "The contraction is the result of the relativity of simultaneity." Bohn writes: "When measuring lengths and intervals, observers are not referring to the same events" (*The Special Theory of Relativity*, p. 59). See also William Rosser, *Introductory Relativity*, p. 37; and A. P. French, *Special Relativity*, p. 97; and Stephenson and Kilmister, *Special Relativity for Physicists*, pp. 38-39.
(5) "The contraction is due to perspective effects." Rindler writes: "Moving lengths are reduced, a kind of perspective effect. But of course nothing has happened to the rod itself. Nevertheless, contraction is no illusion, it is real" (*Introduction to Special Relativity*, p. 25).
(6) "The contraction is mathematical." Herman Minkowski writes: "This hypothesis sounds extremely fantastical, for the contraction is not to be looked upon as a consequence of resistances in the ether, or anything of that kind, but simply as a gift from above, – as an accompanying circumstance of the circumstance of motion" ("Space and Time," in *The Principle of Relativity*: *A Collection of Original Memoirs on the Special and General Theory of Relativity* by H. A. Lorentz, A. Einstein, H. Minkowski and H. Weyl, translated by W. Perrett and G. B. Jeffery from the original 1923 edition, Dover Publications, 1952, p. 81).
(7) "The contraction is real but invisible." James Terrell writes: "…the Lorentz contraction will not be visible, although correction for the finite velocity of light will reveal it to be present" ("Invisibility of the Lorentz Contraction," *Physical Review*, Vol. 116, No. 4, Nov. 15, 1959, p. 1041).
(8) "The contraction is real and not real": Einstein writes: "The author unjustly posited a distinction between Lorenz's conception and my own with regard to the physical facts. The question of whether the Lorenz contraction really exists or not is deceptive. It doesn't 'really' exist insofar as it doesn't exist for a non-moving observer; it does 'really' exist, in that it can be proven principally through physical means for a non-moving observer" ("Zum Ehrenfestschen Paradoxon. Eine Bemerkung zu V. Variĉaks Aufsatz." *Physikalische Zeitschrift* 12: 509-510.; Original German: "Der Verfasser hat mit Unrecht einen Unterschied der Lorentzschen Auffassung von der meinigen mit Bezug auf die physikalischen Tatsachen statuiert. Die Frage, ob die Lorentz-Verkürzung wirklich besteht oder nicht, ist irreführend. Sie besteht nämlich nicht 'wirklich,' insofern sie für einen mitbewegten Beobachter nicht existiert; sie besteht aber 'irklich,' d. h. in solcher Weise, daß sie prinzipiell durch physikalische Mittel nachgewiesen werden könnte, für einen nicht mitbewegten Beobachter.")

> We have shown that the "binary star paradox" is not a paradox at all, but merely a consequence of an erroneous, but commonly accepted, interpretation of the Lorentz transformation as applied to aberration. [20]

So Eisner says that because Einstein tried to answer stellar aberration by shortening the telescope via the Lorentz transform, this was an "erroneous" attempt to explain stellar aberration that led to or was caused by the "relative motion" concept inherent in Special Relativity. Wow! What a blow to Special Relativity! According to Eisner, it can't explain either binary stars or stellar aberration. Unfortunately, neither Palm nor MacAndrew saw it coming. They were so intent they could disprove geocentrism by using binary stars that their greedy minds blinded them to their own problems and contradictions.

Eisner further says:

> But it does require that aberration should be realistically treated as the transformation between the frames of references of two observers, not a source and an observer.[6] This would show that the difference between the "true" direction of a star and its observed direction is not aberration at all. The replacement of "secular aberration" by some term such as "light-time lag" would help this realisation. [21]

Here's another source that seems to have copied Eisner's:

> "Binary stars paradox" is not a paradox at all. Aberration should be treated as the <u>transformation between the frames of references of two observers, not a source and an observer</u>. Suggested replacement of "secular aberration" by the term "light-time lag" [22]

So, in the end, Eisner's solution to explaining aberration is, it is "not aberration at all." It is just a natural anomaly that occurs between the reference frames of two observers, and the anomaly is caused by nothing more than a "time lag" due to the limited speed of light. Unfortunately, Eisner does not explain what he means by "the frames of references of two observers," so we are left without a clear explanation for aberration.

---

[20] Eisner, p. 819.
[21] Eisner, p. 819.
[22] Falletti, www.ph.unito.it/ccl/docenti/menichetti/RRR/Falletti0607.pdf, "Aberration of light from binary stars: a paradox?"

Be that as it may, Eisner says there is no aberration; rather, it is merely how the situation is viewed under the constraints of the heliocentric system. In other words, if you insist on a moving Earth and a stationary star field, they you are "required" to explain light reaching Earth by two frames of reference.

Interestingly enough, I said something similar about aberration not really being aberration in my book, *Galileo Was Wrong*, which Palm quotes below, namely:

> "The geocentric explanation for stellar aberration is very simple, and the simplicity speaks for itself. In reality, there is no aberration of star light."

The difference between Eisner's heliocentric model and the geocentric model is that Eisner wants to explain the "time lag" as caused by the Earth, in a fixed universe, moving away from a star at Earth's orbital velocity (19 mps).

The geocentric model explains it from the perspective of a spiraling universe. First, as the moving universe moves the stars, it also moves the light of the stars. As every star moves in concert with the universe to make a 20.5" "aberration" of the star over the course of a year, so the moving universe *moves every photon coming from that star* in the same 20.5" path. So, because the medium of the light is moving 20.5", the light, relative to the observer on Earth, will act accordingly and move in the same circular path. The universe is the "stationary ether," if you will, only in this case it is stationary with respect to the universe but not with respect to the Earth where the apparent aberration is seen *as all the photons of the stars sweep by a fixed Earth*. It is not really an aberration, *per se*, but is a movement of both the star and its light. It all moves together because it is all moved by the universe. This would also be the case for binary stars, and thus we see their light path not as doubled or tripled in size, but as it is actually occurring from the binaries.

Palm and MacAndrew: What do the new geocentrists say about aberration of starlight and why won't their explanation work? While the neo-geocentrists have tried to explain aberration within their own system, their explanation is wholly inadequate and fails to account for numerous details we have highlighted above.

R. Sungenis: As we have seen, the geocentric explanation of aberration is so simple that one could perform it using a beach ball. It's the heliocentric version that has the problems, and Palm and MacAndrew are apparently unaware of the bind into which they just placed themselves. Not only did they fail to understand what Eisner was saying, they tried to use the very theory, Special Relativity, that Eisner says causes a "paradox" for binaries to answer stellar aberration. Eisner concludes that since Einstein was forced to use the Lorentz contraction to explain stellar aberration, this exposed a gapping whole in his Special theory since the same Lorentz contraction cannot explain binary stars.

Palm and MacAndrew: We've already noted that the standard neo-geocentric "explanation" for parallax is that the entire universe is actually centered on the Sun – an interesting feature of a supposedly geocentric universe. So, according to them, the whole universe is centered on the Sun, while the Sun itself revolves around the Earth – coincidentally at just the period of revolution that we would expect if the Earth happened to be revolving around the Sun according to the universal law of gravitation, like any other planet.

R. Sungenis: So, I hope you see their ploy. Since they know (after years of me reminding them) that geocentrism can answer every challenge given to it by relying on the general principle of relativity, they are so desperate to save face that they now need to switch to the Rube Goldberg defense, which claims the geocentric model is more complicated and clumsy of the two models; and/or that just because the geocentric model is an inversion of the heliocentric model, then it doesn't deserve a place at the discussion table.

MacAndrew's disposition is easy to understand, since he is an atheist. But Palm claims to be a Catholic who knows that his own Catholic Church condemned heliocentrism as a "formal heresy" in both 1616 and 1633; and to show its resolve to the world, convicted Galileo of being "vehemently suspect of heresy" for advocating heliocentrism and sent letters to all the papal nuncios and universities of Europe requiring they obey the Vatican's decision. With the scientific information I have revealed above, now we know why the Holy Spirit led the Church to condemn heliocentrism. Will Palm capitulate? At the least, will he admit that geocentrism is at least a viable scientific option and adjust his apologetic accordingly? Only time will tell.

Palm and MacAndrew: Thus, in their system the parallax is caused by the stars all moving in circles of 150,000 km radius, with the circles lying in the same plane as the ecliptic – a motion that we describe as a "wobble" of the star-field.

R. Sungenis: I think they meant to put "aberration" where they put "parallax" in their above sentence, since geocentric aberration, in addition to parallax, sees "the stars all moving in circles." As for their caricature of the circles being made by a "wobble," we saw earlier that in order to show both aberration and parallax, the universe moves around the Earth via the sun as the cam. We also provide an easy to follow animation of how the geocentric version of aberration and parallax occurs. See below:
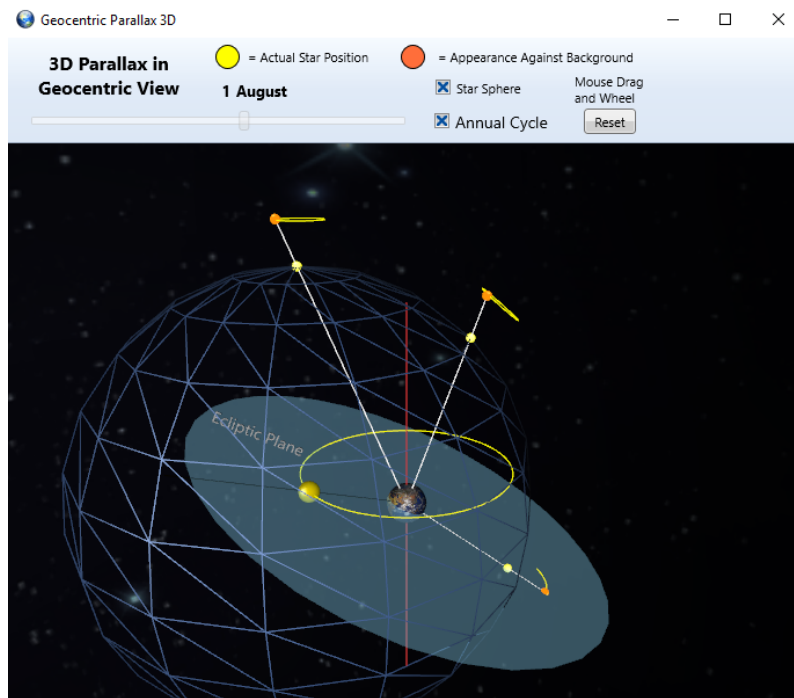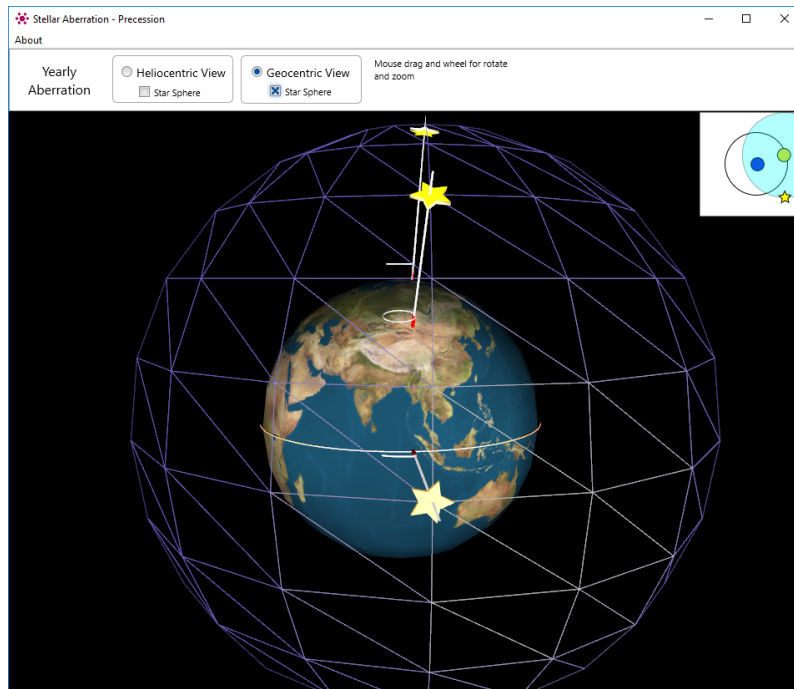
Palm and MacAndrew: This same Rube Goldberg lash-up of a universe…

R. Sungenis: So you see what I mean. Palm prides himself on thinking that the heliocentric system is the less-complicated and the least clumsy. But as I said to him in a previous email exchange, the heliocentric system is not only more complicated and

clumsy, it is the most fragile and has an inordinate amount of *ad hoc* additions to make it work (including, but not limited to, the dubious "Lorentz contraction"). I first gave him a quote from a heliocentric physicist who admitted to the simplicity of the geocentric system. Notice how this physicist also points to the Lorentz contraction as one of the *ad hoc* theories of heliocentrism that makes it more complicated than geocentrism:

> Last night I also quoted from physicist Gregory Snelgar and his remark about the simplicity of the geocentric system, even though he is a heliocentrist.
>
> He mentions the neo-Tychonic model, which is the model that any modern geocentrist uses, including me. The link is: https://www.quora.com/profile/Gregory-Snelgar. Here is what he wrote:
>
> Geocentrism
>
> Is it possible to construct a modern geocentric model?
>
> Gregory Snelgar, Physicist
>
> Answered Aug 31, 2016
>
> A geocentric model would also be an ego-centric model. It would require you to believe that the whole universe revolves around you.
>
> But mathematically it would actually be simpler and more elegant. Perhaps you are thinking of the Ptolemaic system which required complex and inelegant "deferents" and "epicycles".
>
> If we take the neo-Tychonic model, it is actually simpler and more elegant than the current standard model. The other planets orbit the Sun as per modern observations, but the Sun orbits the center of mass of the universe, which is the Earth.
>
> This is observationally identical to the standard model but philosophically unwelcome.
>
> Mathematically it is more elegant because it does away with cosmic inflation, the Lorentz contraction, etc. which were designed with the specific goal of avoiding an egocentric model.

I also told him the following in the paper version of our debate:

> …Your system requires the Earth to rotate on its axis and to revolve around the sun. So right from the get-go you have a very fragile system, since a small spinning and revolving Earth is going to run into all kinds of problems with opposing forces that seek to slow it down, as opposed to a huge universe in the geocentric system that only has to spiral,

but has enough momentum to do so without being appreciably curtailed by opposing forces.

Your sun then has to perform a similar task to your Earth, by revolving around the Milky Way and seeking to maintain its velocity amidst all the opposing forces it will encounter in that trip. The Milky Way itself is said to be revolving around another cluster of galaxies and/or expanding outward and thus it must be able to fight its way through all the opposing forces it meets. (And, we must add that, if the universe is expanding, then why aren't the galaxies expanding internally but always stay the same size?)

In the geocentric universe, we don't have such problems. The sun, the Milky Way and all the other galaxies are relatively stationary with respect to each other, as all of them are confined and carried by a rotating but non-expanding universe. The only thing we have to account for outside the normal gravitational fields of the stars on their planets and planets on their moons, is a sun that revolves around the Earth a little slower than the stars (the reason being that the planets put a gravity drag on the sun).

Additionally, your universe has to start from a Big Bang and somehow evolve into the complexity we see today against the second law of thermodynamics and with all the developmental problems of trying to get organization out of an explosion, which then forces ad hoc stages (e.g., inflation, dark energy, dark matter, fluctuating Hubble and Lambda constants, etc.). You also have a universe that has to expand rather rapidly to keep up with 1A supernova requirements, and by the time you're done, you have a universe expansion that exceeds the speed of light by at least four factors in violation of Einstein's SRT (the same speed of light, ironically, that required "inflation" at the beginning). The expansion also causes problems because you need to explain where the energy comes from to continue the expansion (so they invent ad hoc things like "dark energy"); and you also need to explain where all the gravity comes from for this expanding universe since you only have 4% of the baryonic matter that is needed for the gravity claimed.

In the geocentric system, we don't have a Big Bang and its developmental problems, since the only way a geocentric system could come to be is if the whole thing were created at once by divine fiat, since the parts, following Behe, have an irreducible operational complexity. And we obviously don't need an expansion of the universe since we don't need to form galaxies or wait for the heat to go down over billions of years; and we don't need to have a Hubble constant (that your system keeps changing), or a lambda factor (that your system keeps changing); and we don't need to discuss whether we have a curved or flat universe (that your system keeps changing). Our system is complete and ready to use in six days, and all it needs to do is rotate once a day around a fixed Earth to keep it going, which is rather easy for such a massive

universe with a lot of momentum. All it needs is one push from its Creator and it will rotate indefinitely.

And just to finish the thought, as you know, a rotating universe around a fixed Earth is allowed by both Newtonian and Einsteinian mechanics, so the geocentric system obeys any "laws" of physics now in vogue.

Palm and MacAndrew: ...is what Robert Sungenis attempts to use to explain aberration as well:

The geocentric explanation for stellar aberration is very simple, and the simplicity speaks for itself. In reality, there is no aberration of star light. Rather, what appears as aberrated star light on Earth is caused by a movement of the whole star field around a fixed Earth. Essentially, the cause for stellar aberration is the same as stellar parallax – the stars are aligned with the sun and thus revolve with the sun around the Earth each year.

Consequently, stellar aberration is not caused by a bending of the star's light, but by the revolution of all the stars around the Earth, which, depending on the latitude of the star with respect to the Earth's equator, makes the starlight appear as a circular or elliptical annual motion on Earth. The star field rotates around the Earth on the north/south celestial pole, but the pole itself revolves with a 20.5 arc second radius. As viewed from Earth, the motion of the stars on or near the celestial pole will form a circle in the north, an ellipse at 45° latitude and a hyperbola at the equator (GWW1, 11th ed., p. 155.)

[See the neo-geocentric video seeking to demonstrate their explanation here: link]

R. Sungenis: First, the "link" is not the correct model of geocentric aberration. It was illegally commandeered by a Kass Schmidt. It is an earlier model of aberration and is not advocated in *Galileo Was Wrong*. Second, the paragraphs quoted above the link represent the Neo-Tychonic system, not the link. Notice that I said the same thing in *Galileo Was Wrong* that I said above concerning how geocentrism explains both binary stars and stellar aberration. The only difference is I used the phrase "star field" instead of "universe."

Palm and MacAndrew: This "explanation" may have the advantage of being "very simple", but it also has the disadvantage of being very simply wrong. For starters, the quote above coupled with another a few pages earlier in GWW shows that Sungenis doesn't understand the phenomenon that he is attempting to explain. Sungenis thinks that the eccentricity of the form of stellar aberration (varying between a circle at one extreme and a straight line at the other) depends on where on Earth the observation is made:

R. Sungenis: If one observes the stars at a 45° celestial latitude, he will see each of the stars form ellipses over a year's period. The eccentricity of the ellipse will increase the greater one's distance from the North Pole. If one observes from the equatorial plane, one will see the stars form an acute hyperbola or even a horizontal line (GWW1, 11th ed., p. 150f.)

Palm and MacAndrew: This is a grotesque misunderstanding of the phenomenon. In fact, the form of the aberration is a circle for stars at the ecliptic pole, a straight line for stars on the ecliptic plane and an ellipse for stars lying between, where the eccentricity of the ellipse depends on the latitude of the star in ecliptic co-ordinates. The form of the aberration is *independent of where on Earth the observation is made* – this is a fundamental blunder on Sungenis's part. And where he gets the idea that any of these motions form a hyperbola is anyone's guess – that's wrong too. Yet again, Sungenis shows that he is abjectly ignorant of the very things he pontificates about (see many more examples documented in "Robert Sungenis: Incompetent in Physics".)

R. Sungenis: Palm and MacAndrew just shot themselves in the foot. But before I show how, notice the invidious language they use to frame your mind. Thinking that they have exposed an error, they try to capitalize on it by describing it in the most derogatory manner (*e.g.*, "grotesque misunderstanding," "fundamental blunder," "anyone's guess," "abjectly ignorant," "he pontificates" and then Palm leads you to a website of his that further tries to denounce me. This is not the language or method of a Christian; it is one filled with animosity, or even hatred. This is the "get Sungenis" world that Palm has lived in for the past 15 years, as he spends hours upon hours behind his computer thinking up new ways to denigrate me. For Palm, it appears that this debate is not about having an intellectual discussion so much as it is trying to make me a pariah. In his mind, this is an all-or-nothing game in which he must crush me. I have put up with it patiently over the years because, believe it or not, I consider David Palm and his cohort, Alec MacAndrew, the best gifts God ever gave me and the reason is simple: as deep as they want to go into the subject, I go even deeper to show that their system is the false system; and in doing so, I defend, as a Catholic apologist, the very Fathers and Magisterium that were led by the Holy Spirit to condemn heliocentrism as a "formal heresy," the very authorities that Palm has rejected.

Second, allow me to show that it is Palm and MacAndrew who don't understand either aberration or the geocentric explanation of it. Perhaps if he had obtained from me the correct model (and would have been given to him for the asking).

Let's look at the correct animation of geocentric aberration. Here again is our model:
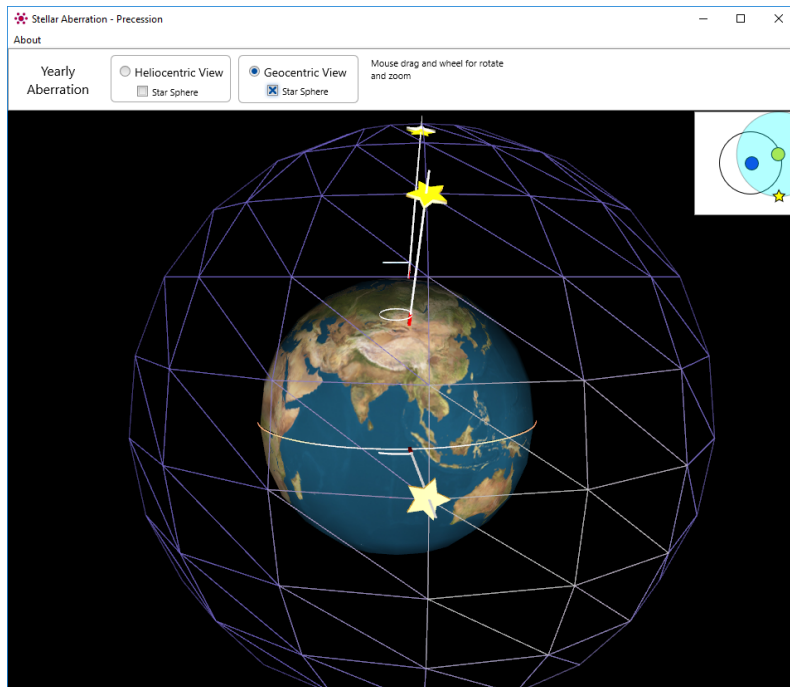
In this animation, the net sphere is circling laterally around the fixed Earth (it also rotates daily but that motion is not in this animation).

In the heliocentric version the net sphere would be fixed and the Earth would circle laterally within the sphere as it circles the sun yearly.
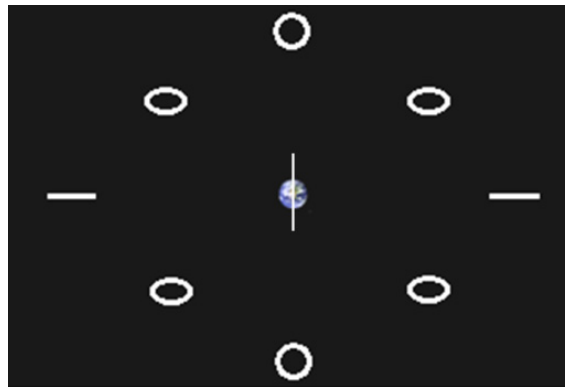
The white line just above the north pole is actually a circle, but we are looking at it sideways so we only see a line. If I tilt the sphere towards you, you can see the line is really a circle. See next snap shot:


29
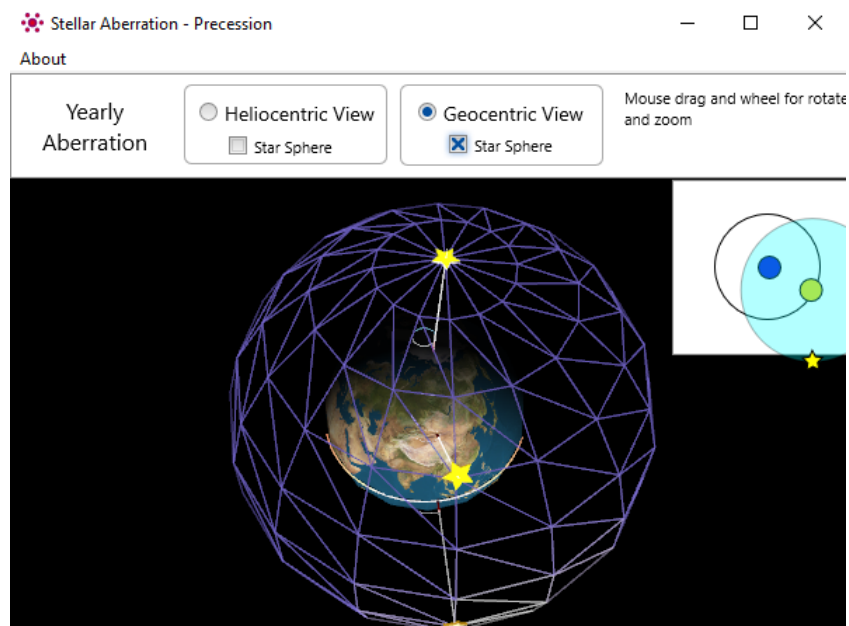
On the Wikipedia page https://en.wikipedia.org/wiki/Aberration_of_light under the heading Annual Aberration, we see the following diagram at the left of this page. Next to it, I have placed the diagram of aberration found in *Galileo Was Wrong*. Please observe
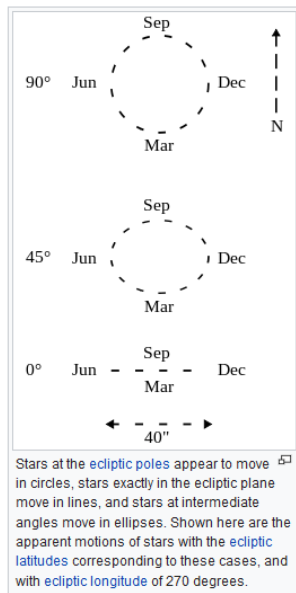

that just as Wikipedia has a circle, and ellipse and a straight line, so does my diagram. Notice that Wikipedia has the circle at 90 deg., the ellipse at 45 deg., and the straight line at 0 deg., just like my diagram.

Stars at the ecliptic poles appear to move in circles, stars exactly in the ecliptic plane move in lines, and stars at intermediate angles move in ellipses. Shown here are the apparent motions of stars with the ecliptic latitudes corresponding to these cases, and with ecliptic longitude of 270 degrees.

R. Sungenis: When I say in *Galileo Was Wrong*, "If one observes the stars at a 45⁰ celestial latitude, he will see each of the stars form ellipses over a year's period," I am not saying that the aberration is caused by where one is viewing from on Earth, which would be absurd. The word "Earth" is not even in the paragraph Palm quoted from *Galileo Was Wrong*. I state that it is a "45⁰ celestial latitude." This means that the ellipse of aberration will be seen 45⁰ from the ecliptic pole (just as it is depicted in the above Wiki diagram for the 45⁰ mark). Thus their comment, "The form of the aberration is *independent of where on Earth the observation is made*," is nothing but a straw man. To further illustrate this, I will refer back to our animation:
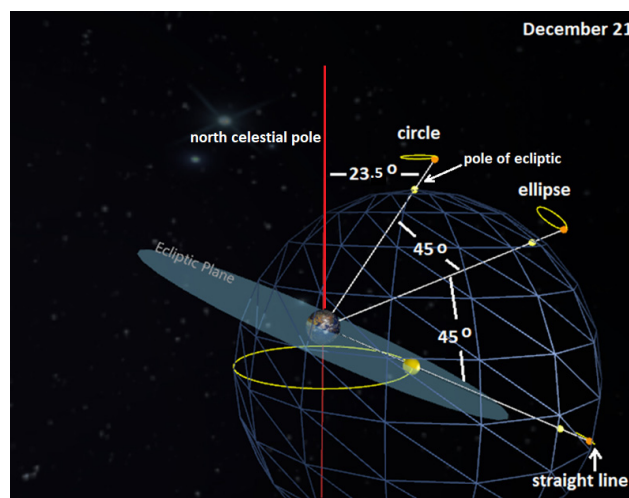
R. Sungenis: This animation is a snap shot at December 21. Notice that the ecliptic pole (the pole that is orthogonal to the ecliptic plane) is 23.5 degrees from the north celestial pole. This angle is used to form the radius around which the universe (the netted sphere) will revolve around the north celestial pole in a year's time. As the universe revolves, it will form a circle, and all the stars in this northern part of the universe will also form a circle (some more circular than others depending on their latitude) since they are all moving with the universe; but the stars that are about 45 deg further south will form an ellipse; and the stars that are another 45 deg further south (parallel with the ecliptic plane) will form a straight line. Let's compare this to June 22 below:
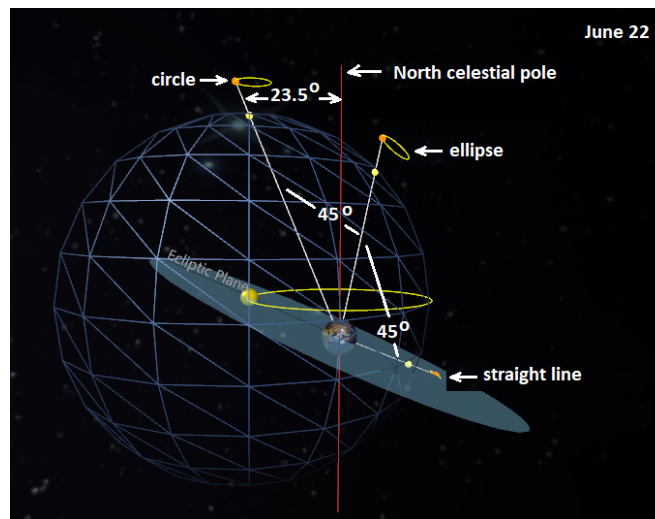

R. Sungenis: Notice that the ecliptic pole is on the other side of the north celestial pole, since the universe has shifted 180 deg from where it was on Dec. 21. If we want to see a clearer picture of the circle, the ellipse and the straight line, we can tilt the universe towards us and see their distinct shapes.

31
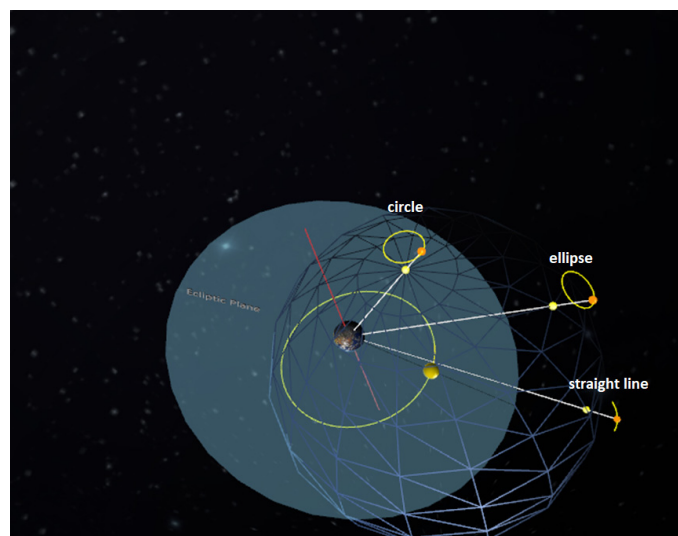
Thirdly, I will address their complaint, "And where he gets the idea that any of these motions form a hyperbola is anyone's guess – that's wrong too." No, it's not wrong. It only shows that Palm and MacAndrew have their finger too tight on the trigger. Wikipedia shows us that a hyperbola is a line that is curved. See below:
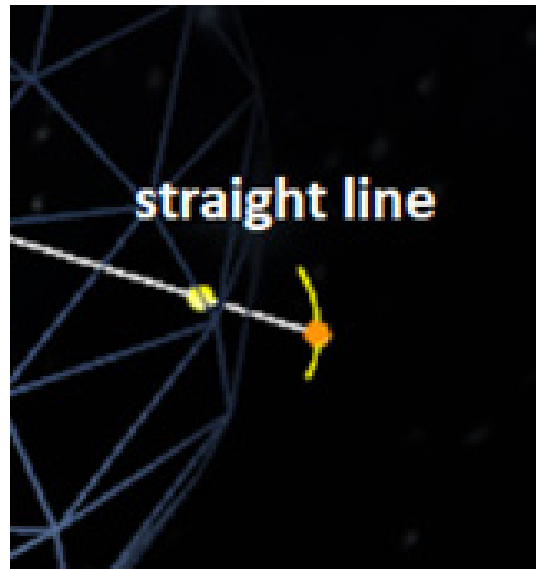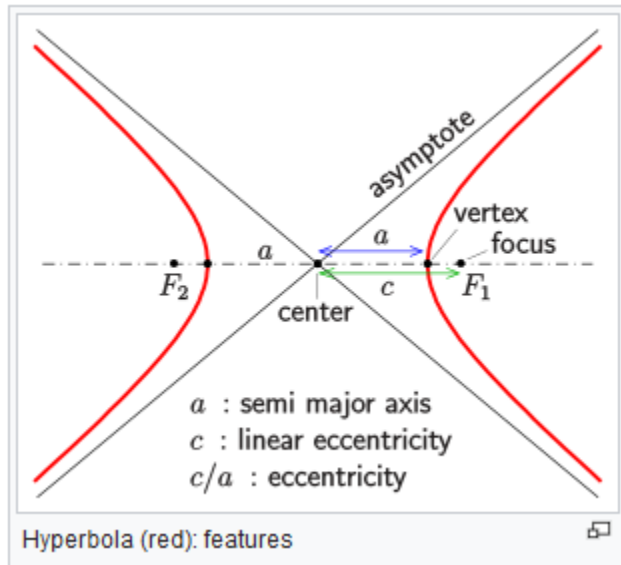
As you can see (at right) from the snap shot of our animation above, what we have called a "straight line" in this paper is actually a curved line, actually a hyperbola. The reason it is technically a hyperbola is because as the universe moves in a circle around the north celestial pole, it moves forward and backward with respect to the star sitting on the ecliptic plane, which will make a boomerang-shaped line over the course of a year. The fact that Palm and MacAndrew couldn't figure this out shows that they don't really understand the geocentric model.

Palm and MacAndrew: Sungenis is also simply wrong in his explanation of stellar aberration as a movement of the whole star field around the Earth. Why? First, as we have already seen, aberration and parallax are two distinct phenomena. They can't both be explained by a movement of the whole star field centered on the sun around the Earth. They are different phenomena with different amplitudes, 90 degrees out of phase.

R. Sungenis: Again, parallax and aberration are required to be two distinct phenomena in the heliocentric system, but not in the geocentric system (which shows again that the geocentric system is simpler than the heliocentric system). This is the very reason that the heliocentric system has a hard time explaining binary stars and aberration. Since the system isn't correct, it causes difficulty in accounting for both, as we saw earlier.

We also saw that the complaint that aberration is 90 degrees out of phase with parallax is nothing but a straw man. The 90-degree difference is simply a matter of where in the ellipse does the effect have its greatest intensity. Parallax has its greatest intensity at the east-west extremities (which is obvious since there are two stars involved) and aberration has its greatest effect in the north-south extremities.

Palm and MacAndrew: If one is prepared to ignore the violation of orbital mechanics and other fatal physical objections (see the paragraph below), one could explain parallax by a motion of the whole star field in a circle with a radius of 150,000 kilometers, because that would look the same as a fixed star field with Earth orbiting the sun (the angular parallax is inversely proportional to the star's distance).

R. Sungenis: As we noted before, there is no "violation of orbital mechanics" or any "other fatal physical objections." I will explain more below. The people with the problem are those advocating Special Relativity (Palm and MacAndrew) as an answer to either binary stars or aberration, as Eisner point out in his paper, the very paper they tried to use to support themselves.

Palm and MacAndrew: But it doesn't work for stellar aberration because the amplitude of the angular aberration is the same for all celestial objects whether they are 4.5 light-years or 4.5 billion light years away. To get a phenomenon where the angular aberration is the same for Proxima Centauri or a galaxy at 4.5 billion light years, the diameter of the wobble for Proxima Centauri would be 4.3 billion kilometers and for the galaxy at 4.5 billion light years it would be 4.3 billion billion kilometers. This explanation is nonsense.

R. Sungenis: Yes, Palm's and MacAndrew's explanation is "nonsense" because in the geocentric system the amplitude of the angular "aberration" is going to be the same for Proxima Centauri as it is for a galaxy that is many billions of miles behind it. They need to understand that the aberration of 20.5 deg is caused by a universe that is moving laterally around the Earth on an annual basis. That universe is filled with fixed stars. As such, all the stars are going to move in the same way because the universe within which they are contained will force them to do so. Hence, the total aberration of 20.5" must be the same for all of them. The only difference is that the aberration of 20.5" may be harder to see for a star that is 20 billion light years away as opposed to one that is 10 billion light years away.

Palm and MacAndrew: Second, the neo-geocentric "explanation" of aberration doesn't consider the light time issue, which is fatal to the geocentric "wobbly universe" explanation of both the parallax and the aberration. For any given direction, the parallax of all stars is in phase and the aberration of all stars is in phase (and 90 degrees different from each other) regardless of their distance, but celestial objects are at a complete range of distances and their light takes from 4.5 years to ten billion years to reach us.

Their individual wobbles would have to be arranged in such an out-of-phase way as to arrive in phase at the Earth accounting for different light propagation times from these different distances – you wouldn't observe what we do observe if the cause of aberration was the whole star field wobbling together.

R. Sungenis: In the geocentric system there really is no "light time issue" since the universe's movement picks up the whole system (e.g., the star and its light) and moves it 20.5" per year.

In other cases, such as the so-called "star light problem of Genesis 1," we also don't have a problem since the geocentric system is an accelerated system due to the universe's daily rotation, and thus light speed is not limited.[23] As far as modern science is concerned, a rotating universe is not an inertial frame and thus Special Relativity wouldn't apply even if it were true, and it is Special Relativity that limits the speed of light to c, although we have seen modern scientists cheat on this limit when they need to (e.g., by inventing "inflation" that makes light appear in 10^{-35} seconds over 10^{35} meters of space; and their later "expansion" at the edge of the universe that has to keep up with 1A supernovas).

And, once again, geocentrism shows itself to be the simpler system in that it doesn't have to use *ad hoc* mechanisms (the Lorentz transform) to compensate for other *ad hoc* mechanisms (Special Relativity) that—we should all remember—were invented precisely to keep the Earth moving when the empirical evidence (the 1887 Michelson-Morley experiment) showed it was standing still in space and light speed was not constant.

Palm and MacAndrew: Let's stick with reasonable explanations. Thus, the existing neo-geocentric explanation fails at the most fundamental levels. It cannot fully "explain" stellar parallax, and it certainly cannot explain parallax and aberration together with the same mechanism. No doubt they'll now scurry to come up with something else. But that they are compelled to find some alternative, tortured explanation for something that already admits of a perfectly reasonable explanation highlights a broader point in this

---

[23] As noted by Rosser: "Relative to the stationary roundabout [the Earth], the distant stars would have…linear velocities exceeding 3×10^8 m/sec, the terrestrial value of the velocity of light. At first sight this appears to be a contradiction…that the velocities of all material bodies must be less than c [the speed of light]. However, the restriction $u < c = 3 \times 10^8$ m/sec is restricted to the theory of Special Relativity. According to the General theory, it is possible to choose local reference frames in which, over a limited volume of space, there is no gravitational field, and relative to such a reference frame the velocity of light is equal to c…. If gravitational fields are present the velocities of either material bodies or of light can assume *any numerical value* depending on the strength of the gravitational field. If one considers the rotating roundabout as being at rest, the centrifugal gravitational field assumes enormous values at large distances, and it is consistent with the theory of General Relativity for the velocities of distant bodies to exceed 3×10^8 m/sec under these conditions" (*An Introduction to the Theory of Relativity*, William Geraint Vaughn Rosser, 1964, p. 460. Rosser was the senior lecturer in Physics at Exeter University).

whole debate. Not all explanations are equally reasonable. It is not sufficient to have some explanation, any explanation to stay in the realm of the reasonable.

R. Sungenis: As we can see, Palm and MacAndrew congratulate themselves before they have even see their opponent's response. They have closed themselves off from considering any alternatives and make themselves the judges of what is "reasonable." The truth is (as we have shown above) not only have they misrepresented the geocentric system, in the process they have created numerous straw men and red herrings so that they can make it look like they are winning the debate.

Palm and MacAndrew: Both aberration of starlight and stellar parallax admit of a simple, reasonable explanation that fits all the observable evidence

R. Sungenis: Not quite. What we have seen is that it is quite easy in geometry and mathematics to switch between a rotating and revolving Earth to a rotating universe to form both parallax and aberration, especially when my opponent doesn't even understand geocentric aberration (e.g., using the wrong video to represent it). At last count, modern science has numerous explanations for aberration (Bradley, Einstein, Lorentz, Fresnel, Eisner) since none of them can really answer the observation, and some completely disagree with the others.

Palm and MacAndrew: – the Earth is orbiting the Sun according to the well understood and universally observed laws of gravity.

R. Sungenis: Well understood? They wish. Modern science doesn't even know what gravity is, much less can they use it to make a heliocentric system the only viable one. The same is true for inertia. They have no explanation for why it occurs. But it's easy to pretend how to use gravity and inertia when you make the rest of the universe inert, as Newton did, and then claim that the only way to explain physics is to have the Earth revolve around the sun. Yes, in that dream world, the Earth will revolve around the sun, but in the real world—the one in which the universe is not inert and can move—then Newton's mechanics are quite limited, since he couldn't deal with accelerated systems, which is why, even today, Newtonian mechanics has to add in accelerated forces (e.g., centrifugal and Coriolis) to come close to the real world. This means there is something wrong with the Newtonian system, and that's why various scientists, one of them being Einstein, said that the Newtonian system has a "defect." One "defect" is that it forbids the universe to rotate and produce accelerated forces, whereas General Relativity does.

Palm and MacAndrew: The angular amplitudes of both parallax and stellar aberration are perfectly consistent with the radius of the Earth's orbit, and therefore both phenomena can be explained with a simple fact: the Earth orbits the Sun once a year with an orbital radius of 150,000 kilometers. And after that *there is no need or even justification to search for any other explanation.*

R. Sungenis: Again, we see the intellectual arrogance of Palm and MacAndrew – 'don't bother me with any other explanations, since I am satisfied with the one I now have' (even though, as we see above, it has contradictions and anomalies all through it). We have also seen that even in their confined solar system Newtonian mechanics has problems, since the gravity equation $F = GMm/r^2$, when compared to the centrifugal/centripetal equation $F = mv^2/r$, cancels the small m on either side and we are left with $F = GM/r^2$ as the force of gravity, making the larger body the only mass force, not to mention that $F = GMm/r^2 = ma$ doesn't fit spiral galaxies, since they spin ten times too fast for those equations. And then here's where Palm and MacAndrew will add in "dark matter" just like Newton had to add in accelerated forces for $F = ma$.

It's an *ad hoc* system patched up with *ad hoc* devices, yet these are the same guys who arrogantly tell us: "*there is no need or even justification to search for any other explanation.*" And that statement is capped onto their apologetic in order to dissuade you from investigating whether there is a better and simpler solution to what revolves around what. MacAndrew's reticence is easier to understand, since he is an atheist. From Palm, who claims to be a Catholic, it is difficult to understand, since he knows that the whole pedigree of Catholic dealing with this issue was to stay with the system that was given to us by the Fathers and Scripture. But Palm has devoted his life to developing an alternative system that defies the Fathers, Scripture and even the Magisterium, hanging his hat on one dubious episode in 1821 in which a weak and sickly pope was lied to by his commissioner in order to allow in imprimatur to be issued on heliocentric book to a single author.

Palm and MacAndrew: As the great philosopher Thomas Aquinas has said, "<u>If a thing can be done adequately by means of one, it is superfluous to do it by means of several; for we observe that nature does not employ two instruments where one suffices</u>". Ironically the neo-geocentrists repeatedly do the very thing they so often belittle real scientists for – clinging tenaciously to their personal view in spite of the evidence against it.

R. Sungenis: Time out for some common sense. Thomas Aquinas was a geocentrist as were all of the medieval theologians, except for perhaps three. So if we use Thomas' quote above, then obviously Thomas would not search for a heliocentric system when the geocentric, properly explained, can answer the question. Be that as it may, we have seen that the Newtonian system that Palm and MacAndrew want to use has flaws. We should also add that even Newton believed that if the proper forces existed outside his solar system, then, "Since this force is equal and opposite to its gravity toward the Sun, the Earth can truly remain in equilibrium between these two forces and be at rest. And thus celestial bodies can move around the Earth at rest, as in the Tychonic system."[24]

---

[24] As quoted from Newton's Proposition 43 by Stephen Weinberg in *To Explain the World*, pp. 251-252.

The more important thing that is taking place here is Palm's unmitigated effort to curtail the geocentric system from even being considered. This is a man with an agenda. The most probable reason for his obstinacy is because he knows the geocentric system works and that there are not only flaws in his heliocentric system, but the general principle of relativity precludes him from eliminating a geocentric system.

Palm and MacAndrew: The Bottom Line: The bottom line is that both stellar parallax and even more so aberration of starlight are powerful evidence in favor of the motion of the Earth.

R. Sungenis: The only "evidence" of heliocentrism is the arrogance of those who promote it as the only solution to orbital mechanics, especially when modern science has already admitted that a geocentric universe is completely viable.

Palm and MacAndrew: The geocentrists' proffered explanation for aberration fails on multiple levels.

R. Sungenis: We have seen, by a much deeper analysis than our opponents, that "aberration" in the geocentric system is not only viable, it is much simpler than the heliocentric explanations which can't even agree amongst themselves what is the correct answer.

Palm and MacAndrew: This demonstrates yet again that these men are incompetent in scientific fundamentals and also that they have no good answers for very basic observations from within their own system. Strict Geocentrism is once more shown to be a dangerous pseudo-science, an elaborate exercise in special pleading and conspiracy mongering.

R. Sungenis: Notice again how Palm and MacAndrew seek to cast aspersions on their opponents with the most derogatory labels and the most invidious motives. The problem starts, of course, with their misguided analysis into the geocentric system, but which their pride sees as the definitive rebuttal.

Palm and MacAndrew: Appendix 1: Debunking Geocentric Challenges to the Mainstream Explanation of Aberration. Geocentrist claim #1:

> **R. Sungenis:** "Additionally, the sun and the planets will show the same aberration, approximately 20.5 arc seconds. The only body exempt is the Earth's moon. So the natural question is: what is causing the light of these celestial bodies to create these shapes and why is the moon exempt? . . . Whatever the true state of affairs for the heliocentric side, the dual explanation from different "frames of reference" will lend itself to establishing the geocentric explanation, which will offer a more cogent reason why the sun takes part in annual aberration. Moreover, the heliocentric argument will show itself not to have an

explanation for why the planets show aberration and why the moon does not (GWW1, 11th ed. pp 151 and 155)."

Palm and MacAndrew: In order to understand how aberration applies within the solar system, we need to understand in which frame the aberration is measured. In the case of extra-solar objects we know that their apparent position changes throughout the year, but with respect to what? Since angular aberration is the same for all stars regardless of their distance, their apparent positions relative to one another remain unchanged as a consequence of the phenomenon, unlike the case of parallax where the closer star appears to move with respect to the background of more distant stars. So, in the case of aberration, the apparent movement of the stars is with respect to ecliptic co-ordinates or ECI (Earth-Centered Inertial) coordinates – if you point your telescope in the direction of the ecliptic pole and keep it fixed in that direction you'll see celestial bodies trace out a circle of ±20.5 arcsecond – this is the stellar aberration.

R. Sungenis: When Palm and MacAndrew claim, "we need to understand in which frame the aberration is measured… but with respect to what?" and "the apparent movement of the stars is with respect to ecliptic co-ordinates or ECI (Earth-Centered Inertial) coordinates," here is what they are really saying: "We don't have an absolute reference point from which to determine what is moving and what is at rest, so we have to make up one, and in this case we'll chose the ecliptic or Earth-centered inertial frame." In other words, they choose a system that has the Earth as both the gravitational and geometric center of the universe. Isn't that ironic? For all their condemnation of geocentrism, the only way they can make sense out of all the universe's motions is to allow, temporarily, the Earth as the center of the whole system. Yet these are the same people who know that, geometrically and mathematically (per Thirring, Lense, Rosser, Ellis, Barbour/Bertotti, Einstein, Hoyle, and the general principle of relativity), that such an Earth-centered system has already been made acceptable, but a conclusion which they reject in favor of a closed Newtonian system that itself has "defects" that can't account for the accelerated system allowed by Thirring, et al. Yet they expect us to take them seriously.

Palm and MacAndrew: Once we consider the aberration of bodies within the solar system, we have to think hard about what frame we are basing your measurements on. For the Sun, the aberration, based on heliocentric ecliptic co-ordinates, is the familiar 20.5 arcseconds, but because it's always in the same sense as the direction of Earth's orbital velocity (always to the west in ecliptic longitude), there is *no annual variation*. Light-time correction for the Sun in ecliptic co-ordinates is zero because the Sun is at rest in these co-ordinates. Light time correction for the Sun's position in ECI co-ordinates has the same value as aberration in heliocentric ecliptic co-ordinates, because it is based on the same ratio of Earth's orbital speed to light speed.

R. Sungenis: What this all means is that they still need a "rest point" in order to determine what the aberration is. They will use either a sun considered at rest with the Earth orbiting around it or they will use a sun at rest with respect to "ecliptic co-ordinates." This is the condition of the Rube Goldberg world of heliocentrism—they need a center of rest but they don't have one, so they will arbitrarily choose a center and co-ordinate everything else around it, and yet, in the end, they will tell you they have no center or rest position. So they borrow from geocentrism in an effort to distance themselves from geocentrism. Three Card Monte, anyone?

Palm and MacAndrew: The apparent direction of planets in heliocentric ecliptic co-ordinates as observed from Earth is aberrated, and depending on the relative locations of Earth and planet, can have a periodic variation, but the co-ordinates of a planet change considerably during the course of an Earth year because of their own orbits. Planetary aberration is defined as the sum of the stellar aberration caused by the motion of the Earth in heliocentric ecliptic co-ordinates (just the same as annual stellar aberration) and the difference between the apparent and actual position of the planet caused by the motion of the planet during the time that light takes to travel from the planet to Earth. For planets within Earth's orbit (Mercury and Venus) there is no periodic variation in stellar aberration. For the planets and other solar system bodies outside Earth's orbit there are periodic variations in stellar aberration, with periods longer than one year. The period of the aberration for planets is their synodic period, which is the time between the closest approaches of the planet to the Earth). The synodic period for Mars is 780 days, for Jupiter it is 399 days, for Neptune it is 368 days. The further (sic) the planet is from the sun, the closer its synodic period approaches one Earth year. Annual aberration is caused by Earth's orbit around the Sun, or in relativistic terms by Earth's change of reference frame as it orbits, but the moon and Earth are orbiting together around the Sun in the same frame, so that there is no aberration of moonlight. Thus, the neo-geocentrists are simply wrong when they claim that "the heliocentric argument will show itself not to have an explanation for why the planets show aberration and why the moon does not." It's worth remembering, too, that there is no such thing as absolute velocity in relativity, so stellar aberration can only be observed, and only has meaning where the observer is in a non-inertial frame – in other words is changing inertial frame over time. It is the orbit of the Earth and the fact that its velocity is changing annually as it orbits the Sun that enables us to observe stellar aberration.

R. Sungenis: So, on the one hand, even though from Eisner they were told that Special Relativity cannot answer binary stars and aberration, Palm and MacAndrew continue to use "relativistic terms" with all its arbitrary "reference frames." As such, all they need do is parse up the system with as many "reference frames" as will allow them to make the distinctions that they need so they can make it appear as if they have some semblance of order. So in this case, the sun is put in a different "reference frame" than the Earth and

moon, and an accelerating Earth is put into an infinite amount of "reference frames" (i.e., "change of reference frame as it orbits") since MacAndrew knows that an infinite number is required in an accelerated frame. How convenient. Numerous reference frames are declared by human fiat.

The simple explanation, of course, is the geocentric one in which the sun takes part in the motion of the stars, and thus they are all going to show the same aberration, minus the sun's lag behind the sidereal rate. But since the moon doesn't partake in the sun/star rotation, it will not have an aberration.

Palm and MacAndrew: Geocentrist claim #2:

> **R. Sungenis:** There is one other factor to consider – the speed of light and the difference between the source and the receiver of the star light. Modern heliocentrism believes: (a) star light is independent from the star once it is emitted from the star, and (b) the emitted star light is not independent of the motion of the receiver. The geocentric explanation has incorporated both of these heliocentric parameters. In doing so, it has shown that whereas the heliocentric explanation requires the phenomenon to be an actual aberration of light, the geocentric explanation holds that it is caused by a vector radiation of light from the star that is not aberrated but travels in a linear direction to the viewer on Earth. In later chapters we will see how this result agrees in principle with the results of the experiments performed in 1871 by George Biddell Airy (GWW1, 11th ed. p. 158).

Palm and MacAndrew: This geocentric "explanation" is essentially incoherent. As we have already demonstrated in the main body of this article, one cannot predict the observed aberration if one assumes that the phenomenon depends on motion of the source, and there is good reason to discount motion of the source as a cause.

R. Sungenis: And we have seen that the analysis of even their own heliocentric aberration is difficult, much less have they understood the geocentric one.

Palm and MacAndrew: We don't know what a "vector radiation" is, and there Sungenis offers no mathematical or even verbal explanation for how stellar aberration could arise if the Earth is stationary. Where in Sungenis's book, *Galileo Was Wrong*, can we find the demonstration alluded to here?

R. Sungenis: A "vector" is a line that travels straight as opposed to being aberrated and not traveling straight.

Palm and MacAndrew: Geocentrist claim #3:

R. Sungenis: Finally, in the geocentric model, the sun and planet's 20.5″ movement is caused by their annual traveling with the rest of the star field and thus they will react in the same manner as the stars. The moon, however, does not show a 20.5″ movement since it is locked in place by the gravity of the fixed Earth. The heliocentric model has no explanation for these phenomena (GWW1, 11th ed., p. 158).

Palm and MacAndrew: This is incorrect. As pointed out above, aberration is a consequence of motion of the observer, and cannot be explained by the motion of the entire universe with respect to the Earth for several reasons that we have explained above. In relativistic terms it is a consequence of the fact that the Earth is not at rest in an inertial frame.

R. Sungenis: Palm and MacAndrew have not proven that aberration is due to the motion of the observer. Rather, they first assume the Earth is moving and then try to explain aberration, and when they do, Special Relativity shows a paradox (Eisner), yet they still insist on using Special Relativity to claim that "the Earth is not at rest in an inertial frame." Go figure. What they really mean when they say "the Earth is not at rest in an inertial frame," is that they have chosen, by human fiat, not to allow the Earth to be motionless.

Palm and MacAndrew: However, the moon and Earth are orbiting together in a single frame (the Earth-moon barycenter), and the Earth remains in that frame throughout the year, so there is no annual aberration of moonlight. In ECI co-ordinates there is a light time correction of the moon's position given by v_m/c, where v_m is the moon's orbital speed. $V_m = 1.02$km/s, so $v_m/c = 3.42$ x 10^{-6} radians or 0.704 arcseconds. So the fact is that there is a perfectly good real physics explanation for these phenomena, a monumentally superior explanation compared with the neo-geocentrists' ridiculous "explanation".

R. Sungenis: Notice that our explanation is considered "ridiculous," but it uses the same explanation as the heliocentric system, namely, that the Earth and moon are considered one unit. Go figure.

Palm and MacAndrew: Fundamentally, claim #3 depends on the neo-geocentrists' foundational claim that aberration can be explained by a "wobbly universe", a claim which we have already demolished in the body of this article.

R. Sungenis: Again, notice how they claim victory before they even have a response from me. But we saw how such bravado only exposes them all the more when it is shown that they misrepresent the geocentric system. There is no Elmer Fudd "wobbly universe." It is a universe in off-center rotation around its center of mass, which will then cause precession and nutation that allows the universe to move up and down the

ecliptic plane and for its ecliptic pole to precess. Only someone with a penchant to denigrate his opponent and use silly terms to describe his model would resort to characterizing these natural movements of rotating objects as a "wobbly universe."

Palm and MacAndrew: It is even more obviously incorrect for solar system bodies, because the planets change their distance to Earth by significant amounts as they and the Earth orbit the Sun, so if the explanation of aberration is a wobble of the planets, Sun and stars round the Earth, a planet's wobble would have to change its displacement amplitude in direct proportion to its distance from us to keep the angular aberration constant as observed.

R. Sungenis: And, of course, this is false for the same reason we stated previously, which is that the universe carries all the stars, the sun, and the planets in the same way, and the only difference would be that the sun and planets have their own independent proper motion, as do some stars.

Palm and MacAndrew: Again, the neo-geocentrists are forced to pile absurdity upon absurdity in order to explain a phenomenon that admits of a perfectly simple and reasonable explanation, namely, that the Earth is orbiting its star according to the universal laws of gravitation, just like any other planet.

R. Sungenis: We have seen that the heliocentric explanation is not a "reasonable explanation," since the two physics used to describe it contradict one another (Newtonian and Einsteinian). Newton will neither allow a rotating universe (*e.g.*, his "absolute" universe imposed by Newtonian fiat) nor a universe that generates inertial forces that directly influence the solar system. Because Newton can't deal with accelerated frames, he doesn't know what to do with the centrifugal and Coriolis forces and must then relegate them to "fictitious" forces, yet consider them real enough to add to $F = ma$ when confronted by an accelerated frame. Not surprisingly, Newton also has problems with gravity ($F = GMm/r^2$) equating with its inertial opposite (mv^2/r), which ends up eliminating the gravity of the smaller object ($F = GM/r^2$).

But in Einstein's General physics, and in the general principle of relativity, the universe can rotate around a fixed Earth, since Einstein finally realized that no physics can make the universe either immovable or inert by human fiat. This also made him realize that he could no longer confine the speed of light to 300,000km/sec, nor could he limit the speed of gravity or material objects.[25] He also realized that his system would not work without an ether as a "light carrier."[26]

---

[25] "In the second place our result shows that, according to the general theory of relativity, the law of the constancy of the velocity of light *in vacuo*, which constitutes one of the two fundamental assumptions in the special theory of relativity and to which we have already frequently referred, cannot claim any unlimited validity. A curvature of rays of light can only take place when the velocity of propagation of

Interestingly enough, Einstein invented Special Relativity in 1905 (ten years before General Relativity) and more or less tried the same thing Newton did in 1687, that is, by confining it to our solar system. As he tried to explain the 1887 Michelson-Morley experiment, he claimed that Michelson's apparatus contracted in length; dilated in time; light speed never varied; and there was no ether. He was forced to invent these things if he wanted at least some explanation why the Michelson experiment showed an Earth that was motionless. Einstein's *ad hoc* inventions made it appear as if it was still moving around the sun. But when Einstein superseded the Special theory to include the rest of the universe—the General theory—he found that the Earth could, indeed, be motionless; that light speed was not constant; that ether is needed as a light carrier; and there was no contraction or time dilation.

So we see that once both Newton's and Einstein's theories are not allowed to exclude the universe; and once the universe is permitted to rotate and generate inertial forces that control everything within it, it is only then that we have faced reality. Interestingly enough, it is only the geocentric universe in which the best of Newton and the best of Einstein are combined to give us the divinely designed universe, as confirmed by Scripture, the Fathers and the Catholic magisterium.

---

light varies with position. Now we might think that as a consequence of this, the special theory of relativity and with it the whole theory of relativity would be laid in the dust. But in reality this is not the case. We can only conclude that the special theory of relativity cannot claim an unlimited domain of validity; its results hold only so long as we are able to disregard the influences of gravitational fields on the phenomena (*e.g.*, of light)" (Albert Einstein, *Relativity: The Special and General Theory*, 1920, p. 76; Methuen, London; Albert Einstein, *Relativity: The Special and the General Theory*, authorized translation by Robert W. Lawson, 1961, p. 85).

[26] "…in 1905 I was of the opinion that it was no longer allowed to speak about the ether in physics. This opinion, however, was too radical, as we will see later when we discuss the general theory of relativity. It does remain allowed, as always, to introduce a medium filling all space and to assume that the electromagnetic fields (and matter as well) are its states…once again "empty" space appears as endowed with physical properties, *i.e.*, no longer as physically empty, as seemed to be the case according to special relativity. One can thus say that the ether is resurrected in the general theory of relativity….Since in the new theory, metric facts can no longer be separated from "true" physical facts, the concepts of "space" and "ether" merge together. (Albert Einstein, "Grundgedanken und Methoden der Relativitätstheorie in ihrer Entwicklung dargestellt," *Morgan Manuscript*, EA 2070, as cited in Ludwik Kostro, *Einstein and the Ether*, Aperion, 2000, p. 2. For a good summation of Einstein's reasoning in regard to reviving the ether concept, see Galina Granek's "Einstein's Ether: Why Did Einstein Come Back to the Ether?" *Apeiron*, vol. 8, no. 3, July 2001; "Einstein's Ether: Rotational Motion of the Earth," *Apeiron*, vol. 8, no. 2, April 2001; Ludwik Kostro, "Einstein and the Ether," *Electronics and Wireless World*, 94:238-239 (1988). Kostro writes: "the notion of ether was not destroyed by Einstein, as the general public believes" (*ibid.*, p. 239); "Lorentz wrote a letter to Einstein in which he maintained that the general theory of relativity admits of a stationary ether hypothesis. In reply, Einstein introduced his new non-stationary ether hypothesis" (*ibid.*, p. 238). "It would have been more correct if I had limited myself, in my earlier publications, to emphasizing only the non-existence of an ether velocity, instead of arguing the total non-existence of the ether, for I can see that with the word *ether* we say nothing else than that space has to be viewed as a carrier of physical qualities" (Albert Einstein, "Letter to H. A. Lorentz, November 15, 1919," EA 16, 494, as cited in Ludwik Kostro, *Einstein and the Ether*, *Aperion*, 2000, p. 2).